A CURRICULUM FOR CULINARY PROFESSIONALS

Michael Charles Milster, M.S., C.E.C., C.C.A., C.C.E., C.F.B.E., C.H.E.

A Project Presented to the Graduate Faculty of
Saint Louis University in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Education

2019

COMMITTEE IN CHARGE OF CANDIDACY:

Assistant Professor Tony DeCesare,
Chairperson and Advisor

Assistant Professor Timothy Howell

Assistant Professor Maureen A. Wikete Lee

Professor Emeritus Ann M. Rule

Associate Professor William L. Siler

DEDICATION

I would like to dedicate this work to my wife, Peggy, who has been a staunch supporter of my continuing education through the course of thirty years and five college degrees. I could never have done it without you.

ACKNOWLEDGEMENTS

I would like to thank all the members of my Doctoral Committee for taking the time to read and critique my work. I would especially like to thank Tony DeCesare, who has spent countless hours editing and supporting me in this work, and Ann Rule, who has stuck with me and guided me for so long. Thanks to Tim Howell and Bill Siler for your long-term support of my endeavor and for being so willingly signed on. Maureen Wikete Lee, double thanks for putting up with me as both a fellow student and through the doctoral process. Finally, thanks to Kelley Campbell and Leanna Brunner, whose brilliant APA style and editing abilities made the way so much easier and the paper so much better.

TABLE OF CONTENTS

LIST OF TABLES

PREFACE

Brief Overview

This project defends the development of a new educational program for the training of professional culinarians. The term "culinary professional" will be put forth and defined as something new that has evolved into existence in recent years. It will be shown in Chapter 2, by reviewing the history of culinary education, that current programs are evolved more so than carefully planned, and that their primary focus is on training skilled working cooks who may become chefs and kitchen managers. A case will be made that a culinary professional and a cook or chef are not synonymous and that there are many other jobs and occupations that require a culinary and food background besides cooks and chefs. Current training in cooking skills is unsatisfactory for many of these related fields, and while it may be adequate for training those who want to be professional cooks or hope to become chefs, a better, more complete and more thorough program will benefit them as well.

First, I argue that the education currently available for these professionals is inadequate for their ultimate success in their chosen fields. Second, I suggest that the nation's chefs and culinary professionals are in a strong position to influence people's eating habits and that a new curriculum can prepare them in such a way that this influence has a positive impact on people's eating habits and health. Evidence will be cited that suggests that people will naturally choose a more healthful and enjoyable diet if they understand and appreciate good food. This understanding and appreciation are likely to be influenced by current and future generations of culinary professionals. To do so effectively, they will need different, more thorough preparation and education.

It will be made clear that many Americans are unhealthy because of poor diet. To date, the societal and the governmental answer has been education; in various ways, people of all ages have been taught to eat healthily for well over 50 years. Children have been indoctrinated about food groups, pyramids, My Plate, and portion sizes; adults are exposed to United States Department of Agriculture (USDA) Recommended Daily Allowances, which are printed on all food packages. The large-scale impact of such broad public policies and educational endeavors on society is difficult to precisely determine. It may be helping to contribute to people making healthier food choices, but it is not helping nearly enough.

Heart disease is at an all-time high, and according to the Centers for Disease Control and Prevention (CDC), it is the number one killer of both men and women (National Center for Chronic Disease Prevention and Health Promotion, 2017, para. 3; para 1). The CDC also says that it costs the United States $200 billion each year in health care services, medications, and lost productivity (National Center for Chronic Disease Prevention and Health Promotion, 2017, para 6). The CDC lists diabetes, poor diet, overweight, and obesity as risk factors that contribute to the incidence of heart disease (National Center for Chronic Disease Prevention and Health Promotion, 2017, para 9-11). Eating behaviors are complex, and in many cases, people knowingly choose to eat unhealthy diets. Surveys report that Americans are "more interested in diet and health than ever before . . . [but] the numbers of overweight and obese Americans tell a different story" (Zelman, 2005, para. 3). The American diet is still causing a weight problem of epidemic proportions (WHO, 2018, para. 1-4; Woolston, 2018, para. 5), and I propose that we teach people about food as part of a fulfilling, flourishing lifestyle, rather than as a prescription. To this end, I will assert the following:

All safe and wholesome food is healthy. Eating a healthy diet is just a matter of eating only safe and wholesome foods in the healthiest proportions for each individual. In this case, I use the words "safe and wholesome" in the way that the USDA and Food Safety Inspection Service (FSIS) does, meaning "not harmful" (Cannon, 1961, p. 1, p. 5; Food Safety Inspection Service, 2012, p. 1). For example, all meat for sale in the United States must be inspected by the USDA for *wholesomeness*, which ". . . is mandatory and is paid for with public funds" (Food Safety Inspection Service, 2012, p. 1). The USDA "ensures that meat and poultry products are safe, wholesome, and correctly labeled and packaged" (Food Safety Inspection Service, 2012, p.1). The federal inspection of meat is a result of the 1967 Wholesome Meat Act and the 1968 Wholesome Poultry Products Act, both of which require states to have meat and poultry product inspection equal to the inspection standards of the federal government (Food Safety Inspection Service, 2012, pp.1-2). Meat inspectors identify meat as "Healthy (no disease), Sound (clean, sanitary), Wholesome (not adulterated), and Properly Labeled (it is what it says it is)" (Aberle, et al., 2001, pp. 261-265). Safe and wholesome meat, in this example, means that meat will be processed in sanitary conditions, be free of contaminants such as chemicals or broken glass, and be non-diseased.

Most people will choose to eat what they like. They most often choose foods they like, regardless of their perception of the "healthiness" of that food or its alternatives. One recent study showed that 84% of people say that taste is the top driver of their food choices (International Food Information Council Foundation, 2017). Nutritionist Kathleen Zelman furthers, "The main reason we choose a particular food is because we like the way it tastes. We don't eat blueberries because they're an excellent source of antioxidants—we eat them because they taste good" (Zelman, 2005, para. 5).

What people like to eat is a mostly learned behavior. People can adjust what they like to eat and learn to like new and different foods. Notably,

> Nevertheless, overall there is not a consistent case for a strong role of genetics in explaining observed variability in adult sensory affective responses, and even less so for liking of actual foods. This view of "innate" responses implies a major role for learning in the adoption and maintenance of food likes and preferences. It is certainly apparent that even likes or dislikes, which are present at birth, may be readily modified by later experience and learning (obvious examples being the acceptance and liking of hot spices, or of bitter foods such as coffee or beer). Many other lines of evidence also support the position that human subjects tend to like what they eat, rather than the reverse. (Mela, 1999, pp. 513-521)

The meaning of the above referenced assertion—that "people like what they eat" as opposed to eating what they like—is that people learn to like the foods they eat regularly rather than seeking to eat foods that they somehow have a natural affinity for. In other words, a person from a culture (and childhood) that regularly consumes fish daily will come to like fish, whereas a person who comes from a culture (perhaps very landlocked) in which fish is scarce, rarely eaten or even unavailable, will probably not. The important point is that if we eat a lot of fruits and vegetables (which we should) and less fatty, salty, sugary fast food (which we also should), then we can come to enjoy fruits and vegetables more and fast food less. Again, this emphasizes that eating habits are learned rather than innate, so it is possible to learn to like different foods than we already do, and that this learning can be influenced.

We should de-emphasize teaching people what foods to choose or avoid and instead teach people to eat "good". "Good" is a complex term; it means quality, desirability, excellence, and more. I will make a strong case for what is "good" eating. The Los Angeles Food Policy Council (2018) states, "Good Food is the new paradigm within our food system — encouraging the production, distribution, accessibility and consumption of high quality food to build a healthy, just, and sustainable food system" (para. 1). The WK Kellogg Foundation and

the Michigan Good Food Charter further define good food as food that is healthy (nourishing, safe, wholesome), sustainable (produced, processed, and distributed with environmental stewardship), fair (those in food supply chain were treated and compensated fairly and without exploitation) and affordable (everyone at all incomes has access) (Colastani et al., 2010, pp. 1-4; Los Angeles Food Policy Council, 2018, para. 1-5; W.K. Kellogg Foundation, n.d., para. 1-3). Once people understand and appreciate "good" food, and adopt eating behaviors based on "good" eating, the hope is that they will also begin eating a "good" diet that is more sustainable, more enjoyable, and more closely aligned with the USDA's healthy eating guidelines. Zelman states,

> Over time, we [adults] develop a palate for other flavors. Some studies have suggested that children who are exposed to a wide variety of foods early in life are more likely to enjoy a greater variety of flavors as adults. But it is possible to teach yourself to love the taste of healthier foods as an adult. Learning to enjoy "the taste of eating right" takes time and perseverance. (Zelman, 2005, para. 5-6)

Today and in the future, culinary professionals are positioned to positively impact the eating behaviors of the American people. At this time, the education opportunities to train and study for those culinary professional jobs are inadequate because they are steeped in an antiquated and outdated apprenticeship-based model of education that has been passed down through multiple generations of chefs. This will be explained further in Chapter 2. Therefore, I have developed a new curriculum design for a certificate, an associate degree, and a bachelor's degree in culinary and food studies.

Purpose Statement

The purpose of this paper is to produce an alternative food and culinary arts curriculum that is not bound by the traditional chef apprenticeship hierarchy system. This new curriculum is designed to better serve undergraduate students studying to be culinary professionals because it

will provide a variety of liberal arts courses (as opposed to exclusively or nearly exclusively culinary courses). Through a variety of liberal arts courses in math, writing, and critical thinking, culinary students will theoretically be better prepared for successful careers, and better educated on how to positively impact the eating behaviors of people in American society. This will be accomplished by introducing a paradigm shift that changes the primary focus of the education of culinary professionals from vocational training to one of diverse, liberal, and professional development.

Glossary of Acronyms

ACF: American Culinary Federation. This is a professional organization for cooks and chefs, recognized as the largest, most-established, and most-respected culinary organization in North America.

CDC: The Centers for Disease Control and Prevention. This federal agency "conducts and supports health promotion, prevention and preparedness activities in the United States, with the goal of improving overall public health" (*TechTarget*, 2009-2015, para. 1).

CEC: Certified Executive Chef. This certification identifies "chefs . . . who have demonstrated a standard level of culinary competence and expertise through education, experience, knowledge, and skills consistent with the executive chef level" (American Culinary Federation, 2017, p. 4).

CIA: The Culinary Institute of America. This is the first chef-oriented culinary training school in the United States that was specifically created to train returning World War Two veterans in the culinary arts (The Culinary Institute of America, 2018, para. 5).

CMC: Certified Master Chef. "The title of Certified Master Chef (CMC), presented solely by the American Culinary Federation (ACF) in the U.S., is the highest level of certification a chef can achieve" (American Culinary Federation, 2017, "2017 Certified").

DHHS: The Department of Health and Human Services. One of the governing bodies that oversees the Food and Drug Administration and that has responsibility for food safety and regulatory activities (National Academy of Sciences, 1998, p. 26).

EPA: Environmental Protection Agency. For the context of this paper, this is one of four agencies that is responsible for food safety and regulatory activities (National Academy of Sciences, 1998, p. 26).

FDA: Food and Drug Administration. This organization is part of the Department of Health and Human Services and is one of four agencies that is responsible for food safety and regulatory activities (National Academy of Sciences, 1998, p. 26).

FSIS: Food Safety and Inspection Service. Part of the US Department of Agriculture, this organization is one of four agencies that is responsible for food safety and regulatory activities (National Academy of Sciences, 1998, p. 26). FSIS "is . . . responsible for ensuring that the nation's commercial supply of meat, poultry, and egg products is safe, wholesome, and correctly labeled and packaged" (Food Safety Inspection Service, 2012, p. 1).

NMFS: National Marine Fisheries Service. Part of the Department of Commerce, for the purpose of this paper, this is one of four agencies that is responsible for food safety and regulatory activities (National Academy of Sciences, 1998, p. 26).

USDA: United States Department of Agriculture. This is one of the organizations that oversees the Food Safety and Inspection Service. This department develops and executes federal legislation related to food, farming, and forestry laws related to responsible for developing and executing federal laws related to farming, forestry, and food (National Academy of Sciences, 1998, p. 26).

Key Terms

1967 Wholesome Meat Act and 1968 Wholesome Poultry Products Act: These two pieces of federal legislation govern meat, poultry, and poultry products inspection. The FSIS oversees the state meat inspection programs, which have to be equal to the federal inspection standards, and if states cannot maintain the program, the FSIS takes over the inspection responsibility (Food Safety and Inspection Service, 2012, p.1).

Apprentice: "One who is learning by practical experience under skilled workers a trade, art, or calling" (*Merriam-Webster, Incorporated*, 2018, "Apprentice," Def. 1b). Additionally, the American Culinary Federation (ACF) continues to offer Chef Apprenticeship programs in conjunction with schools and programs that they accredit. Students complete three years, or 6,000 hours, of hands-on training in an "approved house" along with a body of study in college. They typically earn an associate degree and become Certified Culinarians.

Certified Chef or Culinarian: A chef or culinarian is one who has met all requirements for and been recognized by the American Culinary Federation in the United States. There are 16 different chef certifications available, and they each indicate different areas of expertise and/or different levels of skill and development. All certifications require a combination of verified work experience, education, and written and practical examinations.

Chef: "Skilled cook who manages the kitchen (as of a restaurant)" (*Merriam-Webster, Incorporated*, 2018, "Chef," Def. 1). Chef is a term borrowed from Old French; it literally means manager or leader or chief (*Merriam-Webster, Incorporated*, 2018, "Origin and Etymology of CHEF"). In French, the *chef de cuisine* is the chef (manager) of the food and the kitchen. Similarly, the *chef d maître d'hôtel* is the chef (manager) of the house; in America, the title of manager of the house indicates the person in charge of dining room operations. The term chef

has also become an honorific and is used like the honorifics Doctor or Professor; for example, "Doctor Ellen Jones, let me introduce Chef Cindy Kancook." Finally, in general, a person is considered to be a chef when they are recognized as such by their peers. While this is admittedly vague and unclear, the kitchen manager at Olive Garden is not likely to be considered a chef by her peers, regardless of what she may call herself.

Connoisseur: "[an] expert**;** *especially*: one who understands the details, technique, or principles of an art and is competent to act as a critical judge [such as] a *connoisseur* of music [and] one who enjoys with discrimination and appreciation of subtleties [such as] A *connoisseur* of fine wines (*Merriam-Webster Incorporated*, 2018, "Connoisseur," Def. 1-2).

Craft: "an occupation or trade requiring manual dexterity or artistic skill" (*Merriam-Webster, Incorporated*, 2018, "Craft," Def. 2a).

Culinarian: "cook, chef" (*Merriam-Webster, Incorporated*, 2018, "Culinarian"). In the food business, the term culinarian is used to distinguish a person working in the food industry who has a background or an education in food. An example of this is a person who has earned a culinary degree, who is working as a cook under a chef, and who also aspires to becoming a chef. The term culinarian also applies to people employed as cookbook authors, food writers, food photographers, and food television personalities.

Culinary Professional: (This definition is important to this project. In common language, it is sometimes used interchangeably with the term "chef". It is not here. The following is mine and what is meant by this term throughout the project.) A person with an outstanding knowledge of food and superior cooking skills who earns their primary living in the food industry. A culinary professional is highly trained in both technical skills related to food and liberal studies; they are

literate, articulate, artistic, and intellectual. They can apply their skills and education to a variety of food-related jobs and occupations and are capable of becoming a positive influence on, and effective leaders in their communities.

Dietician: "a specialist in dietetics" (*Merriam-Webster, Incorporated,* 2018, "Dietician"). Within the field of dietetics, this term generally refers to a Registered Dietician.

Dietetics: "The science or art of applying the principles of nutrition to the diet*" (Merriam-Webster, Incorporated,* 2018, "Dietetics").

Food Scientist: "Food scientists … use chemistry, biology, and other sciences to study the basic elements of food. They analyze the nutritional content of food, discover new food sources, and research ways to make processed foods safe and healthy" (Bureau of Labor Statistics, 2018, para. 11).

Food Studies: According to Emily Contois, Editor-in-Chief of *Graduate Journal of Food Studies,*

> Food studies is the burgeoning, interdisciplinary, inherently politicized field of scholarship, practice and art that examines the relationship between food and all aspects of the human experience, including culture and biology, individuals and society global pathways and local contexts. (Contois, 2017, para. 1)

Contois (2017) furthers, "Food studies is a field built on the connections between researchers and communities, addressing resources, assets, dilemmas, and solutions" (para. 2). Maria Frostling Henningsson, of the Stockholm Business School's Nordic Association of Food Studies, defines food studies as " . . . a field of study within the Western academic world using food ways, food systems and eating habits as a unit of analysis . . . [also] involving the critical examination of food and its context within science, art, history, society" (Henningsson, 2016, para. 1).

Gastronomy: "The art or science of good eating" (*Merriam-Webster, Incorporated*, 2018, "Gastronomy," Def.1). The study of gastronomy is the attempt to understand what good eating is. It is highly intellectual and necessarily artistic. Defining "good eating" is an extremely complex endeavor.

Good Food: As defined for this project, the term "good" is a complex and subjective term that means quality, desirability, and excellence, and "good food" is further defined as food that is healthy (nourishing, safe, wholesome), sustainable (produced, processed, and distributed with environmental stewardship), fair (those in food supply chain were treated and compensated fairly and without exploitation), and affordable (everyone at all incomes has access) (Colastani et al., 2010, pp. 1-4; Los Angeles Food Policy Council, 2018, para. 1-5; W.K. Kellogg Foundation, n.d., para. 1-3).

Gourmet: "A connoisseur of food and drink" (*Merriam-Webster, Incorporated*, 2018, "Gourmet"). This term also describes individual foods, a style of food, or a style of eating. A gourmet dinner would be fancy and elegant and probably expensive. Caviar is a gourmet food; Doritos are not. Crémante de Loire is gourmet wine; Thunderbird and Boone's Farm are not.

Nutritionist: "A specialist in the study of nutrition" (*Merriam-Webster, Incorporated*, 2018, "Nutritionist"). Within the field of dietetics, this term generally applies to a dietician who is not a Registered Dietician.

Overweight and Obese: As defined,

> Weight that is higher than what is considered as a healthy weight for a given height is described as overweight or obese. Body Mass Index, or BMI, is used as a screening tool for overweight or obesity . . . . Body Mass Index (BMI) is a person's weight in kilograms divided by the square of height in meters. A high BMI can be an indicator of high body fatness. If your BMI is less than 18.5, it falls within the underweight range. If your BMI is 18.5 to <25, it falls within the normal. If your BMI is 25.0 to <30, it falls within the overweight range. If your BMI is 30.0 or higher, it falls within the obese range. (Centers for Disease Control and Prevention, 2016, para. 1-3)

Profession: "a calling requiring specialized knowledge and often long and intensive academic preparation; a principal calling, vocation, or employment; the whole body of persons engaged in a calling" (*Merriam-Webster, Incorporated*, 2018, "Profession," Def. 4a-4c).

Safe and Wholesome Food: The idea of "safe and wholesome" relates to food safety, food inspection, and how government agencies work to ensure a safe food supply (Cannon, 1961, pp. 1, 5; Food Safety and Inspection Service, 2012, p. 1). As related to the idea of food safety in the United States, the Committee to Ensure Safe Food from Production to Consumption wrote in its report,

> The committee defines safe food as food that is wholesome, that does not exceed an acceptable level of risk associated with pathogenic organisms or chemical and physical hazards, and whose supply is the result of the combined activities of Congress, regulatory agencies, multiple industries, universities, private organizations, and consumers. (National Academy of Sciences, 1998, p. 4).

Additionally, the dictionary defines safe as "3: HARMLESS; [such as] *safe* drinking water and wholesome as "2: promoting health of body, 4b: SAFE" *(Merriam-Webster, Incorporated*, 2018, "Safe"; *Merriam-Webster, Incorporated*, 2018, "Wholesome").

Specialist: "one who specializes in a particular occupation, practice, or field of study" (*Merriam-Webster, Incorporated,* 2018, "Specialist"). In the context of this paper, specialist is used to define people with specific degrees and special training in, among other things, culinary arts, food studies, food policy, nutrition and dietetics, food science, food processing, food systems and sustainability, meat analysis, restaurant management, and a myriad of others related to food.

Trade: "an occupation requiring manual or mechanical skill: craft; the business or work in which one engages regularly: occupation; the persons engaged in an occupation, business, or industry (*Merriam-Webster, Incorporated*, 2018, "Trade," Def. 3a-3c).

Summary

Chapter 1 will define the term "culinary professional" and differentiate the term from "chef". I will include a problem statement, the gist of which is that current educational programs for training culinary professionals is inadequate, and that a new and better one is needed. I will further discuss the growing obesity epidemic in the United States as it relates to Americans' eating habits and food perception and offer a more thorough examination of the current culinary professional educational curriculum, its existing issues, and the need for its revision. Chapter 2 provides a history and overview of the evolution of current culinary and food education and a review of current literature on curriculum theory and development. Chapter 3 will explain how educational theories and curricular models were used to design the new curriculum and will describe the process of its design. Chapter 4 includes much information that defends and justifies the new curriculum, including all of the courses, their descriptions, and detailed learning objectives. Chapter 5 provides a summary of the project, discusses the results, presents implications for practice, and makes recommendations for future research and/or further needs for education for culinary professionals.

CHAPTER 1: INTRODUCTION

Differentiating Between Culinary Professionals and Chefs

Currently, there are many academic paths for those pursuing a food-related education to follow. There are degrees available in culinary arts, food studies, food policy, nutrition and dietetics, food science, food processing, food systems and sustainability, meat analysis, and restaurant management, as well as a myriad of other more obscure subsets. Pennsylvania State University even offers an *ice cream* correspondence course that both Ben and Jerry of "Ben and Jerry's" ice cream brand attended, which led to the 1978 opening of the first Ben and Jerry's ice cream shop in a renovated gas station in Burlington, Vermont (Ben and Jerry's, n.d.; Lynch, 1988). All these degree fields produce the much needed culinary *specialist*, which is defined here as "one who specializes in a particular occupation, practice, or field of study" (*Merriam-Webster, Incorporated*, 2018, "Specialist"). That is fine, but the culinary field and the food service industry need broadly educated individuals who possess a training and background with a wide variety of skills in many culinary fields, enabling them to serve multiple roles, as public educators, cooks, kitchen managers, and chefs. I propose to call these people *culinary professionals*; a culinary professional might be a chef, but not *just* a chef, if a chef is *just* an expert cook and kitchen manager. These people are culinary generalists rather than specialists. A culinary professional is a person with an outstanding knowledge of food and superior cooking skills who earns their primary living in the food industry. A culinary professional is highly trained in both technical skills related to food *and* liberal studies; they are literate, articulate, artistic, and intellectual. They can apply their skills and education to a variety of food-related jobs and occupations and become a positive influence upon—and effective leaders within—their communities.

Well-trained culinary professionals would have the general background to do many things. A culinary professional would need to be competent enough in food science to ensure that all safety and sanitation procedures are correct, in place, and adhered to; have a solid understanding of basic nutrition guidelines to ensure a menu with plenty of good food choices in recommended proportions; be familiar with food purchasing and procurement systems and product flow; know USDA grades for beef and how to write a proper purchasing specification; have deep enough understanding of human food preferences and behaviors to develop a menu that would satisfy a diverse and eclectic clientele; have a foundational understanding of all business aspects involved in an operation; and know human resources policies, accounting principles, liability issues, and foodservice operational cost control procedures. There is a shortage of people capable of filling this kind of role: the *culinary professional* is needed.

There is no legal definition for what or who a chef is. Though a chef can be defined as a "skilled cook who manages the kitchen (as of a restaurant)" (*Merriam-Webster, Incorporated*, 2018, "Chef", Def. 1), the term "chef" is borrowed from Old French; and literally means manager or leader or chief (Merriam-Webster, Incorporated, 2018, "Origin and Etymology of Chef"). Students who attend culinary programs at colleges and universities often have the mistaken expectation that they will be chefs when they graduate, which is not the case; they will be people with degrees in culinary arts who are *not qualified* to be chefs and who will not be recognized, hired, or employed as chefs. Culinary school graduates who become Certified Culinarians can expect to find jobs as cooks in very fine restaurants, working with very capable chefs who may mentor and encourage their further professional development; however, *no culinary program anywhere actually trains or produces qualified chefs.* The American Culinary Federation (ACF) is a professional organization of cooks and chefs, which is recognized as the

largest, most-established, and most-respected culinary organization in North America. A chef or culinarian is one who has met all requirements for—and been recognized by—the American Culinary Federation of the United States. The ACF offers 16 certifications and apprenticeship programs. All certifications require a combination of verified work experience, education, and written and practical examinations. At the highest levels of certification, the testing requirements are quite rigorous, and the practical examinations may require months of dedicated preparation and are quite expensive. It is important to note that there *are* highly talented and well-respected chefs who *never* choose to pursue professional certification. Additionally, it is unfortunate in the culinary industry that the certification process is confusing to laymen. It may take years or even decades of hard work and dedication for an individual to earn the Certified Executive Chef (CEC) distinction, and that title is only the second highest level. The ACF CEC certification identifies "chefs . . . who have demonstrated a standard level of culinary competence and expertise through education, experience, knowledge, and skills consistent with the executive chef level" (American Culinary Federation, 2017, p. 4). An ACF certification requires education, passing written and practical examinations, and working a designated time—sometimes years—in the field to gain experience. It is the *experience* component that makes the culinary field unique; one cannot simply go to school and pass an exam to become a chef. In conclusion, especially for the purposes of this project, the terms "chef" and "culinary professional" cannot be used interchangeably. It is possible for chefs to *be* professional culinarians, but some are simply highly skilled tradesmen.

Problem Statement

Key to this project is that I have proposed and defined the term "culinary professional" as a culinary generalist:

> A person with an outstanding knowledge of food and superior cooking skills who earns their primary living in the food industry. A culinary professional is highly trained in both technical skills related to food *and* liberal studies; they are literate, articulate, artistic, and intellectual. They can apply their skills and education to a variety of food-related jobs and occupations and are capable of becoming a positive influence upon—and effective leaders in—their communities.

I have established that a culinary professional is different than a chef although it is possible to be both. Thorough canvasing on the Internet reveals that no one currently recognizes a distinction between a culinary professional and a chef. A search for education to become a culinary professional reveals only traditional culinary programs. These are abundant and are designed to educate people (who may eventually become chefs through promotions in the industry) to become cooks. As will be explained in detail in Chapter 2, this education is based upon tradition and an archaic apprenticeship model. Further, if a person wants to become a professional cook or chef, the current offerings are outdated and too narrowly focused on just cooking skills, along with a few classes in basic kitchen management. They are designed to teach people the skills of a tradesman cook, and it is assumed that anything else worth knowing will be learned on the job. This is false thinking; it is like assuming that a person with a trade diploma in auto mechanics or carpentry can then learn everything they need to know to become a mechanical engineer or an architect on the job. The origins of culinary programs (going back to the 1970s and earlier) were based on the training of individuals to fill the needs of the hotel and restaurant industry for cooks and chefs, and they were based on learning the trade of cooking (McGee, 2004, p. 2*).* Current programs do produce graduates that are capable cooks, and many do eventually become chefs. These are adequate, perhaps, but what I propose is *better.* A person thoroughly trained as a professional culinarian will be better prepared as a professional cook, capable of being promoted to chef more quickly and qualified for many other related jobs and careers, such as food writer or

commercial food salesperson. Basic training in the skills needed to become a professional cook may have been adequate at one time, but that is no longer the case as kitchen and cooking skills are just one facet of many that are necessary for today's culinary professionals. For their professional and personal success, culinarians need a new curriculum—one that culminates in a bachelor's degree and that goes well beyond training in the trade of cooking. The stackable degree program proposed here ends with a bachelor's degree, and a thorough internet canvassing reveals that most culinary programs offer only certificates or associate degrees.

A discussion as to why they are inadequate is detailed in Chapter 2. College graduates with a bachelor's degree typically earn 66 percent more than those with only a high school diploma and are also far less likely to face unemployment (Bureau of Labor Statistics, 2019).

This additional income is significant, "Over the course of a lifetime, the average worker with a bachelor's degree will earn approximately $1 million more than a worker without a postsecondary education" (Carnevale, 2015, pp. 1-44).

People choose to enroll in culinary programs for a variety of reasons. Certainly, many want the necessary education to become working professional cooks and hope to become chefs, but others desire to become food writers, food photographers, restauranteurs, and food producers, including farmers. (The kind who grow rather specialized foods as opposed to commodities like soybeans and corn, or single crop monocultures like oranges or commercial grade tomatoes.) The current programs do not adequately provide for these related fields, and culinary graduates frequently find themselves needing additional education to be successful in the jobs they seek. For example, to become a food writer, one might need culinary school to learn about food and cookery and *then* a degree in English or journalism. With the average cost of college for tuition alone at $39,529 per year, this is a barrier to people, especially those from low-income

backgrounds (U.S. Department of Education, 2018, Table 330.10). In fact, approximately 82 percent of students from high-income families attend college, in comparison to only 52 percent of students from low-income families (National Bureau of Economic Research, n.d.).

For people who aspire to become chefs, a degree that predominantly teaches food knowledge and cooking skills may have been adequate in the past, but today's chefs need skills in negotiation, menu development and writing, finance, human resources, supervision, and more. Further, they need liberal education to become leaders and problem solvers. They should not need an additional degree in restaurant management or business administration to acquire the necessary knowledge and skills. Also, of import is the fact that current programs do not provide students with the flexibility and agility needed in today's workplace. Training in the trade of cooking has little transferability to other fields, and culinary graduates may find it woefully inadequate should they choose to change careers.

Finally, and of secondary importance, professional culinarians need training to become broadly and liberally educated leaders in their communities and to have a positive influence on the people that they serve and interact with. By doing so, they may be able to help Americans become healthier and less overweight. Therefore, an entirely new program design is needed to train people for a wide variety of food related jobs and industries, not just to become cooks and chefs. We need education for *culinary professionals*, a course of study that will prepare people in such a way that they will be qualified for a wide variety of culinary related jobs.

Americans Are Overweight and Obese

According to the National Center for Health Statistics and Centers for Disease Control and Prevention, as of 2016, 70.7% of American adults aged 20 years and over are obese or overweight (National Center for Health Statistics, 2017, Table 53, pp. 221-222). By definition,

> Weight that is higher than what is considered as a healthy weight for a given height is described as overweight or obese. Body Mass Index, or BMI, is used as a screening tool for overweight or obesity. . . . Body Mass Index (BMI) is a person's weight in kilograms divided by the square of height in meters. A high BMI can be an indicator of high body fatness. If your BMI is less than 18.5, it falls within the underweight range. If your BMI is 18.5 to <25, it falls within the normal. If your BMI is 25.0 to <30, it falls within the overweight range. If your BMI is 30.0 or higher, it falls within the obese range (Centers for Disease Control and Prevention, 2016, para. 1-3).

Adult obesity rates have doubled since 1980; childhood obesity rates have more than tripled (National Center for Health Statistics, 2013, Table 69, pp. 227-228). Obesity is one of the most serious health problems in the United States, and it has contributed to increased occurrences of more than 30 serious diseases (Centers for Disease Control and Prevention, 2015; Centers for Disease Control and Prevention, 2018). More than one-quarter of health care costs are now related to these preventable problems, with the "annual nationwide productive costs of obesity-related absenteeism range between $3.38 billion ($79 per obese individual) and $6.38 billion ($132 per obese individual)" (Centers for Disease Control, 2018, para. 23).

In 2016, National Public Radio conducted a poll with Truven Health Analytics, which surveyed a nationally representative sample of 3,000 U.S. adults and found a large gap in how people perceived their diets to be versus how they actually ate. One question, "How healthy would you consider your eating habits to be?" had approximately 75% of respondents rank their diet as good, very good, or excellent, despite evidence showing a "disconnect between what nutrition experts and the public perceive to be healthful foods" (Aubrey & Godoy, 2016). People with weight problems tend to swing between periods of extreme diet restriction to gluttonous consumption. According to a UCLA meta-analysis study, dieting does not work for weight loss; researcher Traci Mann states,

> We decided to dig up and analyze every study that followed people on diets for two to five years. We concluded most of them would have been better off not going on the diet

> at all. . . We found that the majority of people regained all the weight, plus more. Sustained weight loss was found only in a small minority of participants, while complete weight regain was found in the majority. Diets do not lead to sustained weight loss or health benefits for the majority of people. (as cited in Wolpert, 2007, para. 2-4)

If people are having problems with maintaining a healthy weight and dieting does not work, what can be done? "The success of personalized nutrition is likely dependent upon the ability to integrate the scientific approach with everyday cultural, emotional, ethical, and sensual understandings of food" (Nordström et al., 2013). This scientific approach means eating food in the correct proportions and not eating more calories than the body burns. Journalist Michael Pollan (2008), in *In Defense of Food: An Easter's Manifesto*, offers this solution: "Eat food. Not too much. Mostly plants. That, more or less, is the short answer to the supposedly incredibly complicated and confusing question to what we humans should eat in order to be maximally healthy" (p. 1). Understanding food with a scientific perspective on a daily cultural, emotional, and ethical level means eating food that is *good*; it means eating *well* (Colastani et al., 2010).

From science, we can establish legislation and propose recommendations and teach and promote healthy eating. Coff (2006) notes,

> Most debates and public disputes about food tend to be diametrical. On the one side there is the materialist, positivist understanding of food and the specific understanding of rationality within science. This represents an intellectual relation to food based on science. On the other side we find phenomenological and cultural understandings of food that appeal the use of our senses, instincts, bodies, feelings, social awareness, and so on. (p. 33)

From a public policy standpoint, the materialist and scientific side wins. Cultural understandings of food are more likely to come from our culture and not from government. Culinary professionals and chefs are and will continue to be an important part of our food culture. The education that they receive should prepare them to influence food culture in such a way as to

encourage healthier eating habits. The curriculum in this project is designed to do so, and currently available programs largely fail to do so.

Rationale

This project will focus on a new culinary curriculum to train culinary professionals. The current culinary education is inadequate and flawed. With a new curriculum, culinary professionals will receive the broad education necessary for success in today's competitive and constantly changing food industries. They will receive the same important training in technical cooking skills and food knowledge as older, outdated culinary programs offer but will also receive the necessary liberal, managerial and artistic training necessary to be lifelong learners, who are adaptable, able to solve complex problems, agile in a changing work environment, and able to be excellent communicators and team members. They will be highly qualified and highly employable food generalists.

Additionally, they will be better trained to have a greater influence in the way Americans think about and relate to food. With this influence, it is my hope that culinary professionals may help Americans address the national epidemic of obesity; that the newly-trained generation of culinary professionals will cause Americans to think about eating "good" food rather than "healthy" food. "Good" is a complex term that means quality, desirability, excellence and more; "good food" is that which is high in quality, healthy (nourishing, safe, wholesome), sustainable (produced, processed, and distributed with environmental stewardship), fair (those in the food supply chain were treated and compensated fairly and without exploitation) and affordable (everyone at all incomes has access) (Colastani et al., 2010, pp. 1-4; Los Angeles Food Policy Council, 2018, para. 1-5; W.K. Kellogg Foundation, n.d., para. 1-3). Eating a diet of good food

has inherent difficulties, too, but it greatly simplifies daily food decisions, eliminates scientific confusion, and could reduce stress caused by feelings of guilt when certain foods are consumed.

Real progress towards improving people's eating habits can only be made by changing what they *like* to eat. According to Boakes, Popplewell, and Burton (1987), "humans' tastes in food are almost solely based on learned behaviors. Tastes are cultural, rather than natural" (p. 107). Many Americans have *learned* to eat a poor and unhealthy diet, based on behavior acquired from their cultures, families, and society. Zelman states, "Personal taste, family preferences, cultural influences, emotional reasons, health concerns, societal pressures, convenience, cost, and variety and quantity of the available offerings all come into play when we choose what to eat" (Zelman, 2005, para. 2). The fact that people have learned to eat poorly and learned to like and choose foods that lead to poor health does not mean that they have been *taught* to eat that way; if it is possible for people to learn to like different foods, then it should be possible to *teach* them to like better foods and to enjoy eating a diet that is also healthier (Boakes, Popplewell, and Burton, 1987; Mela, 1999). As previously stated, no food is unhealthy, but people need to eat foods in healthy proportions according to USDA guidelines (Centers for Disease Control, 2015).

Distinguishing "Good" Food from "Healthy" Food

According to Wansink (2007), it is proven that Americans will avoid food that is supposed to be healthy because they associate the idea of "healthy food" with "bad tasting food". This may be leading Americans to like food that is not "good food"; that is not in the correct proportions, and that is not compatible with the recommended daily guidelines proposed by the USDA. It needs to become the responsibility of culinary professionals to teach and inform the American public about bad food versus good food; to take on this task, they need proper training.

The curriculum designed in this project provides ample training in nutrition *and* in the aesthetic appreciation of food, in understanding and recognizing "good food". Current programs do as well, but inadequately and not purposefully.

I propose that there is no such thing as "healthy" and "unhealthy" food. Virtually all food is healthy, if it is "safe and wholesome" (Cannon, 1961, pp. 1, 5; Food Safety and Inspection Service, 2012, p. 1). Butter, bacon, Twinkies, chocolate cake, apples, kale, and broccoli are all equally healthy to eat; the key is to eat them in the right proportions and to control the total caloric intake (U.S. Department of Health and Human Services and U.S. Department of Agriculture, 2015, p. 11). All food is "healthy"—*including* Twinkies and chocolate cake—if it is consumed in the correct portions and with the right balance of caloric intake; if people consume more calories than they burn, they will gain weight, and it does not matter whether those calories come from Twinkies or kale. A 2012 study conducted by Tel Aviv University discovered that eating desserts such as chocolate cake with breakfast can help with weight loss; participants in the study who added dessert to their breakfast lost an average of 40 pounds more than the control group that avoided cake, chocolate, or cookies (Telegraph Media Group Limited, 2012, para. 1-6). Researchers observed that "attempting to avoid sweets entirely can create a psychological addiction to these same foods in the long-term" (Telegraph Media Group Limited, 2012, para. 7). In the end, the only thing that can cause weight loss is to burn more calories than those consumed; either by reducing the amount of food eaten or by exercising more (U.S. Department of Health and Human Services and U.S. Department of Agriculture, 2015; Zelman, 2005).

Although there is no such thing as "unhealthy" food, it can be unhealthy to eat foods outside of the correct proportions. Doctors and dieticians generally agree with the USDA food plan recommendations for a well-balanced diet, but often many Americans do not follow them

(Mela, 1999). In the *2015-2020 Dietary Guidelines for Americans*, the USDA acknowledges that there are "significant differences between Americans' current consumption and the Dietary Guidelines recommendations" (U.S. Department of Health and Human Services and U.S. Department of Agriculture, 2015, p. vii). The USDA furthers,

> Across the U.S. population, average intakes of foods from the food groups are far from amounts recommended in the Healthy U.S.-Style Eating Pattern. . . . When typical instead of nutrient-dense choices are made in each food group, individuals consume extra calories when meeting their food group recommendations. Shifting from typical choices to nutrient-dense options is an important principle for maintaining calorie balance in a healthy eating pattern. (U.S. Department of Health and Human Services and U.S. Department of Agriculture, 2015, pp. 43-44)

The *2015-2020 Dietary Guidelines for Americans* recommends that Americans "[f]ocus on variety, nutrient density, and amount. To meet nutrient needs within calorie limits, choose a variety of nutrient-dense foods across and within all food groups in recommended amounts" (U.S. Department of Health and Human Services and U.S. Department of Agriculture, 2015, p. xii). In short, Americans are encouraged to shift their choices—and their mindfulness—as to what and how they eat.

Good Eating and the "French Paradox"

The French people are recognized for their love of good food. Something called the "French Paradox" is the observation that the French are, in general, healthier than Americans and much of the rest of the world, although they do not follow what experts call a healthy diet (DeLorgeril et.al, 2002). As defined,

> French paradox: 1. The paradox that France enjoys a relatively low incidence of coronary heart disease [CHD] and a relatively long lifespan, despite a diet high in saturated fats. The explanations proposed include the consumption of wine, specifically red wine, alcohol, and resveratrol, an antioxidant in wine. 2. The perplexing disconnect between France's rich cuisine and slender population. This paradox has been explained in part by portions that are significantly smaller in French restaurants and supermarkets than in their American counterparts. (MedicineNet, Inc., 2012, para. 1-2)

The French have significantly lower rates of cardiovascular disease, diabetes, and cancer (Ferrières, 2004). The so-called paradox stems from the fact that they eat things that American dietitians say should be eaten in only very small quantities, including fatty meat, cheese, butter, chocolate cake, fried foods, lots of cream, and red wine (DeLorgeril et.al, 2002; Ferrières, 2004; Law & Wald, 1999; MedicineNet, Inc., 2012). According to Eleanor Beardsley's National Public Radio story on France's butter shortage, the average per capita consumption of butter is higher in France than any other country in the world, at over 18 pounds per person per year (Beardsley, 2017). That's over a stick and a half of butter per person per week.

While there are numerous perspectives on the underlying causes of the French Paradox (DeLorgeril et.al, 2002; Ferrières, 2004; Law & Wald, 1999; MedicineNet, Inc., 2012), researchers conclude that in general, the French care more about what they eat, they are more mindful in their eating behavior, they spend a larger percentage of income on food, they shop local food daily, they make most of their food at home, and they are very particular about food quality (DeLorgeril et.al, 2002; Ferrières, 2004). In my own words, the French care a lot more about eating *good* food than Americans do. In its "2017 Obesity Update," the Organization for Economic Co-operation and Development (OECD) states that Americans' overweight (including obesity) rate is at 68%, while the French are at 40% (OECD, 2017). The so-called French Paradox does not *prove* that eating good food and enjoying food more leads to better diet and better health, but it does suggest that the French exercise more mindfulness toward their food consumption than Americans.

Culinary Professionals Can Influence Americans

I propose that if we want people to choose to occasionally eat Brussels sprouts instead of French fries because they are lower in calories and nutritionally denser, then we need to teach

people to *like* Brussels sprouts so that they will naturally choose to eat them more often. This does not mean that people would *never* choose French fries; fries are good food, too. Teaching people to *like* different foods just broadens the selection of foods that an individual would consider desirable (Mela, 1999; Zelman 2005).

Current and future generations of culinary professionals are certainly part of and have influence on our food culture. For this influence to be a positive one that helps to improve the quality of life for people (in the enjoyment of their food and improved health), they will need broad scholarly training *combined* with informational knowledge and skills regarding cooking, food preparation, human nutrition, and kitchen management. This new curriculum will break from the outdated, apprenticeship-oriented chef training and theoretically lead to generations of well-rounded, liberally educated, and uniquely trained culinary professionals who can positively influence, educate, and inspire Americans to have healthier, more mindful eating behaviors and relationships with food.

Current Culinary Education in Higher Education

I propose that the purpose of culinary education should be to train *culinary professionals* who have a vast general knowledge, a broad array of skills, and a variety of abilities in culinary arts and food science so that they can have successful careers, as well as have the capacity to make a positive influence on Americans' eating behaviors. However, to be able to do that, one needs to examine the existing education in culinary arts and food in the United States, which is often outdated, bound to an apprenticeship system with a chef, and steeped in generations of traditional, old-school thinking. This will be discussed in detail in Chapter 2. Traditionally, the purpose of culinary education has been to train and produce qualified chefs, which originally meant highly-skilled cooks who could possibly, after years of working in the field, become the

person responsible for the overall operation of the kitchen at an expensive white tablecloth, elegant, elite restaurant, often located in a hotel. By the 1950s and 1960s, schools like the Culinary Institute of America in Hyde Park, New York, were often referred to as "chef schools", which was problematic because culinary programs did not then and *do not today* produce or graduate chefs.

Higher education offerings and degrees in food and culinary arts inadequately prepare students for the jobs that they seek as graduates. Additionally, graduates are not trained to have a positive impact on the health and well-being of our nation. Often, graduates lack transferable skills necessary in a changing world and turbulent job market. Further study is needed to determine exactly why students enroll in culinary programs. If students have the career goal of becoming chefs, then there is strong evidence that they may be wasting their time and money. According to Peterson's (2018) online guide to colleges and universities, there are 559 schools in the United States that offer degrees and programs in the culinary arts (Peterson's LLC, 2018). The United States Department of Labor's Bureau of Labor Statistics cites 146,500 chefs and head cooks in our country in 2016 (U.S. Bureau of Labor Statistics, 2018). DataUSA states in 2015, the total number of degrees in culinary arts that were conferred was 20,123 (DataUSA, n.d.). If that figure remains consistent, the United States produces more culinary graduates (supposedly trained to be professional chefs) every seven years than there are total chef jobs available in the entire country. People are earning degrees for jobs that simply do not exist. Graduates with culinary degrees are also competing for jobs with people who have other education; remember that people must work their way into the position of chef.

Of even greater significance is the fact that only a small percentage of those graduates will have the skill and determination to ever become chefs at all. Students often pay a lot of

money for culinary education, only to find themselves to be qualified for entry level cooks' jobs. In 2011, 800 current students and graduates of the California School of Culinary Arts filed a class action lawsuit, claiming that the college had " . . . falsely led students to believe they would be able to obtain employment as chefs after graduation—to make a chef's salary, thereby enabling them to pay off their loans within a reasonable period of time" (Webley, 2011). During an interview I conducted, Certified Executive Chef Rob Uyemura said he hires people based on what he considers to be a strong work ethic, and that he does not care much about culinary school training. He added, "Being a chef is like being a rock star. You get there by having a lot of talent and putting in a ton of really hard work. There is no such thing as rock star school" (R. Uyemura, personal communication, January 30, 2018). I agree with his analogy; a "rock star school" would be highly suspicious and so is a "chef school".

Cooking is considered to be a trade and not a profession. Traditional culinary education in the United States has been almost entirely vocational. These culinary programs teach people how to cook; it is assumed that they will become employed as cooks and have the capacity to develop themselves and work their way up to becoming chefs. Existing culinary programs are designed to ensure that students are exposed to the fundamental skills of cookery and a vast knowledge of food basics, with the emphasis placed on *doing* rather than *knowing*. The design of existing programs is to teach and produce *tradesmen*, not *professionals*. Most of the programs are only two-year associate degrees or certificates, and they focus on food, cookery, and mechanical skills. Little emphasis is placed on education in other subjects. There is a lack of coursework that develops literacy, social skills, problem solving abilities and other strengths needed for success in a modern professional field. As one example, the Chef Apprenticeship associate degree granted by Johnson County Community College in Overland Park, Kansas, is

well recognized and highly acclaimed. Their students comprise the entire United States college Culinary Olympic team at the time of this writing and will represent our country at the next Olympics in January 2020 in Stuttgart, Germany. Their program requires students to work three years as full-time culinary apprentices (6000 hours). It requires a total of 75 credits for graduation. Of those, only 15 credits are allocated to general studies, and those are mandated by the state. Students take Business Math, College Composition I, Introduction to Psychology, Public Speaking, and one humanities elective. There are 17 credits of kitchen management courses with titles like "Supervisory Management", and all the rest are hands-on cooking classes. Graduates are certainly skillful cooks with a solid understanding of food, but they do not have the broad training needed to be culinary professionals.

Culinary professionals, whether they become chefs or not, need to be educated far beyond simply learning to cook. They need to learn how to think, not just learn what to do. If the main objective of a college culinary arts program is to train culinary professionals, then it should be designed so that program graduates learn to think and behave like culinary professionals. Graduates trained to think and act like culinary professionals have better chances of becoming chefs than graduates trained only in the craft of cooking. Perhaps of even greater importance, they will be better equipped for the variety of jobs *beyond* chef available for people knowledgeable about food.

Culinary professionals need broad, scholarly training, *combined* with knowledge and training in cooking, food preparation, and kitchen management. My proposed culinary program will be an attempt to both. No single curriculum can be designed to teach students *everything* they need to know to be successful culinary professionals. If the school or program cannot teach the necessary skills, then it must be designed *to teach the skill of learning skills*. Graduates who

are culinary professionals must be versatile; they need to read, write, and do math well; they need to appreciate literature and art, and understand philosophy. In short, they need liberal arts education. In a competitive job market, the highly educated and intellectual person with a background of rigorous academic training has the advantage over the vocationally trained culinary educated person.

Summary

Currently, available education in the culinary arts is too focused on teaching the trade or craft of cooking (as shown in the example above and detailed in Chapter 2). Too much of the knowledge and skill needed to become a culinary professional is omitted. Culinary professionals need broad scholarly training *combined* with the knowledge and training in cooking, food preparation, and kitchen management, and for this, a new culinary curriculum is needed. This new curriculum will break from the outdated, apprenticeship-oriented cook's training, and will theoretically lead to generations of well-rounded, liberally educated, and uniquely trained culinary professionals who will be better prepared for the many careers that are available to them. Further, they need to be educated in such a way that they may positively influence our food culture, so that Americans might have healthier, more mindful eating behaviors and relationships with food. In Chapter 2, I will explain how culinary education has evolved over time; how trade training, vocational training, and traditional craft apprenticeship have influenced culinary education; and how currently available culinary education programs work. Further, I will explain why a new paradigm is needed to modernize, liberalize, and professionalize the field. We need curriculum designed to train culinary professionals and not just skilled cooks.

CHAPTER 2: CULINARY AND FOOD EDUCATION TODAY AND ITS EVOLUTION

Introduction

Chapter 1 introduced and defined the term "culinary professional", distinguished it from the term "chef", and suggested that those aspiring to become culinary professionals would need an education more comprehensive than that what is currently available. It also discussed the health crisis of Americans, who are overweight or obese and mentioned the fact that teaching people to eat "healthy" has not been successful, even though *generally* most people know what foods and what amounts thereof they should eat to be healthy. It also suggested that there is a better way to teach people to think about food: to focus on "good" food rather than "healthy" food; and that people will learn to like different food that is better for their health and more enjoyable to eat. It also made the assertions that the group of people most likely to implement this kind of change are culinary professionals, and that the education that is currently available to them is archaic and inadequate. A paradigm shift in culinary education is needed in order to recognize the broader needs of the culinary professional, as opposed to the traditional training designed for cooks and chefs. It is important both to better prepare graduates for professional success and also to have this positive influence on the eating behaviors of our society.

The purpose of Chapter 2 is to provide an understanding of how the education of chefs and culinary professionals has evolved over time. Culinary education has evolved from traditional apprenticeship programs headed by chefs, and generations of chefs have continued with culinary traditions out of respect for the chefs who educated them. Understanding history, tradition, and past curriculum and training explains culinary traditions, provides insight as to why the contemporary culinary curriculum exists as it currently does and gives context for why curriculum change is needed. McGee (2004) expressed this insight well in discussing his book,

On Food and Cooking, which is considered a seminal work and is important to any professional culinarian:

> after *On Food and Cooking* [was published], many young cooks told me of their frustration in trying to find out *why* dishes were prepared a certain way, or why ingredients behave as they do. To their traditionally trained chefs and teachers, understanding food was less important than mastering the tried and true techniques for preparing it. Today it's clearer that curiosity and understanding make their own contribution to mastery. A number of culinary schools now offer "experimental" courses that investigate the whys of cooking and encourage critical thinking. And several highly regarded chefs, most famously Ferran Adrià in Spain and Heston Blumenthal in England, experiment with industrial and laboratory tools—gelling agents from seaweeds and bacteria, non-sweet sugars, aroma extracts, pressurized gases, liquid nitrogen — to bring new forms of pleasure to the table. (p. 2)

Much of the current content in culinary programs includes tried and true methods that remain relevant and that need to be maintained in new culinary curriculum. However, different techniques, improved methods, and new material should be added into said curriculum. For example, Myrhvold, Young, and Bilet's 2011 book, *Modernist Cuisine: The Art and Science of Cooking,* contains six volumes and 2,438 pages; it is an encyclopedic treatise on food and cooking that is truly revolutionary, literally changing the way food and cooking are understood. However, very little of this new knowledge has found its way into mainstream culinary programs, which remain bogged down in tradition. It is important to realize the significance of the *evolutionary* aspect of traditional culinary programs. Current culinary programs have evolved to teach people to be cooks, *not* professional culinarians or chefs. A carefully planned and carefully considered curriculum, like the one that is proposed in this paper, will include up to date materials and will be designed to train professional culinarians, not just cooks.

A Brief History of Culinary Education

The world's first recognized chef, Guillaume Tirel, published one of the first European cookbooks, called *La Viandier*, under the pen name "Taillevent", which means "slice like the

wind" and roughly refers to "an idle swaggerer" (Cotgrave, 1611/1970). He was born in 1310 AD and began his career as an apprentice rôtisseur (spit roaster) at the age of ten, turning spits of meat in front of roaring open coal fires for as long as 18 hours a day (Troy & CulinaryLore, 2012). He left the kitchen for a time and did a stint in the military. This early martial influence upon Tirel may have left an imprint upon professional kitchen culture to this day, as he was the first to use the term "brigade" to describe the hierarchy of the kitchen, with the chef obviously at the top (Troy & CulinaryLore, 2012). Later, as chef to French King Charles VII, Tirel is reported to have frequently said, *"Le chef de cuisine a toujours raison,"* which translates to "The chef is always right" (Blake & Crewe, 1978). Today, Tirel's pen name, Taillevent, is the moniker of a famous Michelin-starred French restaurant. The kitchen, brigade, and storyline from this restaurant inspired the popular Disney movie *Ratatouille*, which demonstrates the depths to which professional culinary traditions permeate even our common popular culture today (Tilmont, 2013).

Professional kitchen culture continues to be quite permeated with notions of tradition, militarism, and pride because the work is very hard, and moving up the brigade is difficult. Culinary programs of today draw upon a history of over 600 years of formal and informal apprenticeship. As late as the 1980s, culinary apprentices were still being told that there were only two words acceptable to say to the chef: "Yes, chef" (Troy & CulinaryLore, 2012). Today, this kitchen culture is still prevalent. It is perhaps this deeply-rooted history that makes change in modern education for chefs difficult. Rather than taking a whole new approach, chefs tend to replicate what came previously. Escoffier (1987) states,

> The 17th Century saw the French monarchy reach its zenith, and with it the complexities of heading the royal kitchens reached mammoth proportions. Surely, the chef under Louis XIV had to be a master of organizational management as well as being a skillful cook. Banquets for over a thousand people were not uncommon, and even the more intimate

> royal banquets presented a challenge with their multitude of courses. The professional chef had become the operating head of the royal household. (p. 50-51)

It is unclear what forms of education other than apprenticeship chefs would have received. They would probably have received tutoring in letters and in math, but mostly it appears that the few and the exceptional self-developed into these important roles.

The grand cuisine of Europe made its way to the United States when, after negotiating the Louisiana Purchase from Napoléon Bonaparte in 1803, earnest gourmet Thomas Jefferson hired the first French chef for the White House (Root and Rochemont, 1976). By the mid-1800s, all major American cities featured grand and expensive hotels with dining facilities that served only the most affluent. These restaurants were invariably staffed with European-trained chefs and cooks (Root & Rochemont, 1976). The first famous free-standing American restaurant, Delmonico's, opened in New York in 1837 and is rumored to have paid the first truly exorbitant salary for a chef when they hired Charles Ranhofer in 1862 (Root and Rochemont, 1976; Whitaker, 2010). It is believed that Ranhofer is the first person ever to develop the idea of professional employment recruiters; he had contracted European agents to promote culinary apprenticeships and send the best young cooks to America (Ranhofer, 1894; Thomas, 1967). Boys were typically apprenticed to chefs for six years and were poorly paid, frequently working only for food and shelter and the opportunity to learn at the feet of a master (Root & Rochemont, 1976; Ranhofer, 1894; Thomas, 1967; Tschumi, 1954). This could be taken quite literally, as chefs of the day were notoriously brutal and vulgar. Andrea Soltner, famous chef at Lutece in New York, related his experience: "I remember when my parents signed the apprenticeship contract. The chef said, 'I own him, he's mine.' He was a little kidding, but he meant I was his. He did with us whatever [he wanted,] … even kicking us" (Dornenburg & Page, 1996, p. 87).

Ranhofer considered that the haphazard "learn on the job" method of culinary training was inadequate, and he advocated for a formalized apprenticeship program in the United States (Ranhofer, 1894). In large part due to the effort of Ranhofer, who discussed the need for trained kitchen staff through his self-published national magazine *Chef*, the United States began to promote a 6000-hour apprenticeship that copied the European and French models (Ranhofer, 1894; Thomas, 1967). This was important to the evolution of American culinary education, in that it signified the emphasis upon training craftsmen for a *trade*; a would-be chef started out working for room and board for three years, beginning by doing the lowest tasks such as washing pots and peeling potatoes (Thomas, 1967; Tschumi, 1954). This is also the beginning of the very *incorrect* notion that all one needed to become a chef was experience working in a kitchen and mastering a long list of cooking skills.

The most influential chef of the next era was Auguste Escoffier, who was born in 1846 and died at age 89 in 1935. Regarded as "The Chef of Kings and The King of Chefs", he is known for his cookery and kitchen management maxim, "Above all, keep it simple" (Les Amis d'Escoffier Society of New York, 2018; Troy & Culinary Lore, 2012). In truth, he did; prominent during the Progressive Era in the United States, Escoffier was greatly influenced by the work and writings of Frederick Winslow Taylor, an American mechanical engineer who led the Efficiency Movement, a scientific study of industrial productivity and scientific management (Escoffier, 1987; The New York Times, 1915). Using similar principles to Taylor's 1903 *Shop Management*, Escoffier designed the layout of and developed the first modern industrial and electric kitchens, implementing industrial concepts of efficiency and product flow (Escoffier, 1987; Labensky & Hause, 2002; Troy & CulinaryLore, 2012). He then designed a kitchen brigade system that organized the kitchen personnel into very specific job positions:

Chef de Cuisine (in America, now usually referred to as the Executive Chef): the top position or commander of the kitchen.

Sous Chef: second-in-command; responsible for daily operations and decision-making when the chef is not available.

Chefs de Partie: station chefs, each with responsibility for one part of the operations. Listed in order of importance as follows:

Chef Tournant: relief chef, capable of working all stations as needed.

Saucier: the sauté and sauce station.

Rôtisseur: the roast station. (Today also includes grilling of items like steaks.)

Poissonier: the fish station.

Potager: the stock, broth and soup station.

Pâtissier: the pastry station responsible for all baked goods and most desserts. The Pâtissier would be responsible for the Boulanger (the bread baker) as well.

Entremetier: the vegetable station.

Garde Manger: the cold food station.

(Chefs Resources, Inc., 2018; Jones, 2014; Labensky & Hause, 2002; The Culinary Institute of America, 2006).

Depending on the size and scope of the kitchen operation, each Chef de Partie might have none or many demi-chefs (assistants or cooks) and commis (apprentices) (Jones, 2014; Labensky & Hause, 2002).

Escoffier formalized the concept of apprenticeship in his kitchens; this is where the term "classically trained chef" comes from, although it is often abused in today's kitchen vocabulary (Jones, 2014; Labensky & Hause, 2002). At the time, Escoffier meant that one would start at the

bottom of the brigade as a commis (apprentice) to the Garde Manger, then become a demi-chef (cook) under the Garde Manger, and then become *the* Garde Manger (Jones, 2014; Labensky & Hause, 2002). After a time, one would then be promoted to the bottom of the next station, once again as a commis/apprentice, and work up through that station to become the Chef de Partie-Entremetier (Jones, 2014; Labensky & Hause, 2002). It could take many years to master each station and move up through the ranks of apprenticeship to become a Sous Chef, after which point one would be assumed capable of moving on to run a kitchen of their own (Jones, 2014; Labensky & Hause, 2002). It was a long and difficult undertaking to become a chef, and like today, many people left the kitchen in pursuit of other gainful employment, because unless one was *the* Chef, kitchen work was hard and did not pay well (Labensky & Hause, 2002; Troy & CulinaryLore, 2012). Today, very few kitchens employ the full brigade system, but remnants are still evident throughout the industry; it is the reason that chefs still possess fierce pride in their profession and why one cannot become a chef simply by getting a degree in the culinary arts. Chefs are expected to be the best at the job of *everyone* in the kitchen for whom they are responsible, in all their respective capacities.

The life and work of Escoffier has an apparent similarity to the evolution of chefs in general, and in some ways how culinarians can still achieve various levels of success. He started as a *lowly apprentice*, became a *tradesman* cook in the military, and then became an *artist* through the creation of ever more beautiful and transcendent dishes (Escoffier, 1987; Troy & CulinaryLore, 2012). While working with the hotelier Cesar Ritz (Ritz-Carlton), Escoffier became a *businessman*, a *professional manager* and an *industrial engineer*. Finally, he became a *publicist*, and using skills far beyond good management or the ability to cook great food, Escoffier became the celebrity chef of his day (Escoffier, 1987; Troy & CulinaryLore,

2012). There is no doubt that Escoffier was a unique, highly talented, highly intelligent, and very hard-working person, who accomplished a great deal in life with very little formal education. He kept company with the intellectuals, scholars, artists, musicians, actors, and politically connected activists of his day, and possessed a self-guided liberal education (Escoffier, 1987; Les Amis d'Escoffier Society of New York, 2018; Troy & CulinaryLore, 2012). There is no current or existing culinary education to prepare a person to do the things that Escoffier did; therefore, I assert that there is need for a new curriculum design for culinarians that does. Escoffier was a highly skilled tradesman cook, a culinary artist, a businessman, a professional manager, an industrial engineer, a publicist, and finally a successful author of several important books. To be successful, professional culinarians need broader education than just that needed to attain the initial level, that of highly skilled tradesman cooks. The curriculum included here provides that training, as well as training in all those other areas. It might not turn all graduates into Escoffier, but it could give them an important head start for a lifetime of learning and growth that trade training cannot.

The new curriculum I propose will better prepare graduates for the variety of skills, positions, and challenges inherent in the culinary profession. A culinary education should provide the graduate with the necessary tools to pursue a culinary career in much the same way as Escoffier did, to progress as far as their individual abilities and drive for hard work and success will allow. Culinary professionals need broad, scholarly training *combined* with knowledge and training in cooking, food preparation, and kitchen management. Culinary professionals must possess the ability to continually self-educate, adapt, modernize, and solve problems. Culinary professionals need training beyond cooking skills alone; they need a well-

rounded, liberal arts-oriented, and dynamic curriculum that differs from the historical, tradition-bound, apprenticeship-oriented mindsets still honored in culinary programs.

Culinary Schools and Community College Programs

In the United States, the most renowned culinary school is the Culinary Institute of America (CIA). The CIA was founded in 1946 as the New Haven Restaurant Institute in New Haven, Connecticut, and was the first chef-oriented culinary training school in the United States that was specifically created to train returning World War II veterans (The Culinary Institute of America, 2018, para. 5). By 1950, they had graduated 600 veterans from 38 states. *Look* magazine praised, "For Americans who dine out regularly, this chef's training program promises a continuity of good eating—with increasing accent on the 'American' tastes" (The Culinary Institute of America, 2018, para. 8-9). In 1951, the school was renamed The Culinary Institute of America, and in 1972 it relocated to Hyde Park, New York (The Culinary Institute of America, 2018, para 10, para. 18). In 1971, the Board of Regents of the State of New York granted CIA the right to confer an Associate in Occupational Studies degree, the first culinary school to bestow a degree (The Culinary Institute of America, 2018, para 17).

The environment and academic atmosphere at the CIA during the 1970s and 1980s was notoriously decadent. Chef Anthony Bourdain, in his book *Kitchen Confidential: Adventures in the Culinary Underbelly*, describes his experience as a student at CIA:

> The CIA of 1975 was very different from the four-year professional institution it is today. Back then, the desired end-product seemed to be future employees at a Hilton or Restaurant Associates corporate dining facility. A lot of time was spent on food destined for the steam table. Sauces were thickened with roux. Escoffier's heavy, breaded, soubised, glacéed, and over-sauced dinosaur dishes were the ideal. Everything, it was implied, *must* come with appropriate starch, protein, and vegetable. (Bourdain, 2000, p. 38)

This description suggests that culinary education has *evolved* rather than been *planned*, and this remains largely true today. Until the 1990s, the most influential chefs in the United States came out of the CIA, and many still do. As other, newer culinary schools began to arrive on the scene, they were staffed with faculty who were largely CIA graduates, thus reinforcing the notion of a very slowly-evolved educational system for culinary professionals.

When Bourdain describes learning to prepare "dinosaur dishes" in 1975, he iterates that the cuisine that he was being taught and the education he was receiving was old, obsolescent, and outdated (Bourdain, 2000, p. 38). Ironically, in 2019, this is *still* what is taught at most culinary schools, including at the CIA. Every culinary program to this day ensures that all its graduates are competent in making the "Five Mother Sauces" of Escoffier renown: Béchamel, Espagnole, Tomato, Hollandaise and Volouté (Escoffier, 1903/1907). The textbook published and used by the CIA is over a thousand pages long yet devotes only 36 pages to sauce making, all of which cover the five mother sauces and a few of their derivatives (meaning you add something to a mother sauce and call it something else) (Culinary Institute of America, 2011, pp. 256-290). There is only one exception: at the very end of the chapter is a recipe for barbecue sauce. Culinary education is largely based upon tradition, especially traditions started and perpetuated by traditional culinary schools, including the United States schools: The Culinary Institute of America, Johnson and Wales, and The New England Culinary Institute. Further, those who did not graduate from those schools were likely taught by graduates of them. Culinary faculty members pursue minimal, if any, college training after completing their two-year culinary degrees. Bourdain's claim that CIA faculty are "industry burn-outs" (2000, p. 38) remains true today. Though academics need to remain abreast of the latest research and developments in their field, many chefs are *not* scholarly. It is easier for many chefs to continue to teach old techniques

and outdated recipes than it is for them to relearn what they know about cooking, or to become skilled in Modernist cooking techniques, such as those espoused by Myhrvold, Young, and Bilet (2011). A new paradigm is needed in culinary education to encourage ongoing development and continued growth of multiple generations of chefs; there is a need for chefs and professional culinarians to be trained as scholars, not just as apprenticed tradesmen.

In addition to culinary schools, another important development in culinary education occurred with the advent of the community college in the United States. A community college is a publicly funded, post-secondary institution that provides entry-level college education. Most community colleges have open admissions policies (anyone can attend with the prerequisite of a high school diploma or equivalency) and a wide range of course offerings, and training includes two-year associate degrees, transferable degrees, vocational training, certificate courses, and non-credit options (Pannoni, 2015). Many of the programs offered at community colleges train students to perform a job in a specific field (such as plumbing, welding, auto mechanics, and culinary arts, for example) and to become a useful and productive member of society. Almost every major American city has a community college with some type of culinary training; however, this training is focused on students becoming cooks, not chefs or other culinary professionals.

Regardless of the training institution, the U.S. government does allocate funds for student education in vocational and trade schools, community colleges, and universities. Whereas the Culinary Institute of America was created with the unique purpose of training post-World War II veterans, the United States Congress also passed the Servicemen's Readjustment Act of 1944 (commonly known as the GI Bill), to allocate funds for post-World War II veterans to get education, unemployment insurance, and housing (U.S. National Archives & Records

Administration, 2018). Congress hoped to avoid a post-war depression brought on by the wide-spread unemployment of military veterans; the GI Bill offers the following:

> Federal aid to help veterans adjust to civilian life in the areas of hospitalization, purchase of homes and businesses, and especially, education. This act provided tuition, subsistence, books and supplies, equipment, and counseling services for veterans to continue their education in school or college. Within the following 7 years, approximately 8 million veterans received educational benefits. Under the act, approximately 2,300,000 attended colleges and universities, 3,500,000 received school training, and 3,400,000 received on-the-job training. (U.S. National Archives & Records Administration, 2018)

The GI Bill reflected a major shift in the direction of federal influence on education, in that it gave money to the individual students rather than to the institutions. The federal government has continued to provide federal funds for a variety of educational needs. The government has allocated dollars toward establishing and supporting many programs related to occupational or vocational training, including The Vocational Act of 1963, which authorizes federal funding of occupational programs in post-secondary institutions, and the Perkins Vocational Education Act (1984, 1990, and 2006), which amends the 1963 act by increasing funding, resources and productivity needed to expand, improve, and update the nation's vocational-technical education (Office of Education, 1964; US Department of Education, 2018). Culinary training falls under the purview of occupational and vocational training; those who want culinary training can attend culinary schools and community colleges and acquire federal funding. Culinary training is still considered job training, and advancement to a bachelor's degree is not often considered a realistic option for program graduates; they are still trained to just become *cooks*. They learn a trade instead of a profession, and if the goal is producing culinary professionals, then this is inadequate.

The Future of Culinary Education: Trade Versus Profession

A new paradigm in professional food and culinary education is badly needed. A shift of focus is needed for culinary education to move from vocational and occupational training (a trade) to professional training (a profession). The curriculum included in this project provides a full four-year bachelor's degree that retains necessary cooking skills that are needed by professional culinarians, cooks, and chefs, while also providing a broader, more liberal, and more thorough college education. This new curriculum is designed to train *professional culinarians* who are dynamic, innovative, adaptable, agile, and who possess the very important skill of *knowing how to learn* about food and food systems.

According to *Forbes*, the food industry is the largest industry in the world. In 2007, it was worth approximately $4.8 trillion, which is about 10 percent of the world's gross domestic product (Murray, 2007). While the industry itself is huge, the study of food and food systems remains unfocused at best. Through history and tradition, food remains a subject that is highly specialized and compartmentalized. Doctors and dieticians study food from a health perspective that seems to ignore the many human and cultural aspects involved with eating; they see food as something that can be prescribed. Food scientists study it in terms of chemistry and microbiology; they focus on food safety and measure ingredients in parts per million so that Campbell's tomato soup consistently tastes exactly the same. In agriculture, there are some specialty farmers who try to produce foods of exceptional quality, but for the most part, a majority of farmers are focused on efficiently producing the products that make the most money. Traditional old-school chefs, to various degrees, are involved with the actual preparation and service of food and are primarily focused on creating food that is popular with the people who consume it. Chefs are hands-on producers of end-use, ready-to-eat food, with little time or

inclination to view foods from any other perspective. Finally, there are scholars of gastronomy in the field of food studies, which is still in its infancy. Food studies approaches food through a multi-disciplinary lens, with consideration for food and culture, sociology, public policy, and history. These are scholars who are "all about" food, but are in many ways the opposite of chefs because they understand very little about the cooking, preparing, or consumption of food. Cooks and chefs, conversely, need more exposure to food science and human nutrition education; they need more understanding "about" food, in addition to the ability to cook and manage kitchens.

Culinary schools (regardless of whether the school is exclusively culinary or is associated with a community college or university program) began and evolved to train people for careers in such areas as fine-dining, in which white-coat chefs could hold positions in high-end restaurants, hotels, resorts, and private clubs. While many culinary schools offer associate degrees, culinary schools are not chef schools, and do not produce chefs; they produce competent cooks who may someday aspire to become chefs. What is really needed is training for *professional culinarians*, who need to be trained for a *profession*, as opposed to just trained for a *trade*. A *professional culinarian* will be a person who is knowledgeable about food in many different aspects—in the *profession* of food—and who is also highly skilled in the *trade* of cookery.

During his presentation at the Gateway School Leadership Institute held at Saint Louis University, speaker Dr. Steven Barkley defined the terms *profession* and *trade*. His definition, as applied to teaching, can also be applied to the role of a professional culinarian. He said, "In a *trade*, you learn the right way to do something and do it that way. In a *profession*, you must know and understand best practice at an expert level. You use and apply best practice but when

that doesn't work, you experiment and innovate to find solutions that do work" (S. Barkley, personal communication, June 22, 2016). Barkley furthered in an email,

> I describe that in a trade, you learn the right way to do something and then do it the *right way*. [For example,] Give an x-ray or wire a circuit. In a profession, you learn best practice and then experiment with your client. Best practice guides your start, but you observe [the] client and adjust, modify, or change. [For example,] A doctor treating your symptoms. (S. Barkley, personal communication, June 24, 2016)

Another working and meaningful definition of a profession is that it must have the following characteristics:

> It requires mastery of a specialized body of knowledge and an extensive period of training. It provides a service to society. It maintains high standards of conduct and competency for its members. It offers its members opportunities to become certified or licensed and to be active in professional organizations. It asks members to be committed to lifelong learning or continued study. (Brefere, Drummond, & Barnes, 2005, p. xiii)

Barkley's definition of trade versus that of profession has important implications for higher education. Barkley believes that the significance lies in the fact that instructional and curricular design in higher education should be different for professions than for trades (S. Barkley, personal communication, June 22, 2016). The curriculum here proposed does this; it is different from traditional trade-based culinary programs. It does show the student the "right way" to do things, but it goes beyond that. It teaches them to start with the "best practice" but also to go on to experiment, create, adjust and modify in the way that Barkley describes a professional will do. It also is designed to align with all the things that Brefere, Drummond, and Barnes refer to: It requires mastery of a specialized body of knowledge and an extensive period of training (food and cooking and a bachelor's degree). It provides a service to society (besides the obvious, a positive influence on food culture and health). It maintains high standards of conduct and competency for its members. (At the very least, professional culinarians will not make people

sick.) It offers its members opportunities to become certified or licensed and to be active in professional organizations (the American Culinary Federation, the World Association of Chefs, and the Research Chefs Association provide these). It asks its members to be committed to lifelong learning or continued study (all professional culinary certifications require renewal—generally, every five years—and renewal always requires continuing education). Professional culinarians must continually learn and grow, or their knowledge of and skill with food will quickly become outdated.

Lack of academic rigor in culinary programs is likely the result of being slowly evolved, rather than carefully planned. This is at least in part because the faculty were not highly educated themselves. Post-secondary culinary faculty members across the United States are generally qualified with a two-year degree and a few years of experience. Faculty positions for culinary instructors frequently appear in the Chronicle of Higher Education's job search website ChronicleVitae, and HigherEdJobs listings often contain the words "or" and "preferred" in the required qualifications. Examples include the following:

> F[ull] T[ime] Professor – Culinary Arts: Requirements – associate degree from a regionally accredited institution indicating a major in discipline. Bachelor's degree is *preferred* [emphasis added] ACF and Food Protection Management certifications are desired. Community college or university teaching experience is desired. Extensive food industry experience is required and must be documented in application materials. (The Chronicle of Higher Education, 2018, "FT Professor")

> Adjunct Professor – Culinary Arts: Baking & Pastry Arts – Minimum Requirements – Bachelor's degree in appropriate area of study and experience in full service Bake Shop, Restaurant, Institution, Hotel or Club and ACF certification (Certified Executive Chef, Certified Executive Pastry Chef or Certified Culinary Educators); *or* [emphasis added] Associate's degree in appropriate area of study and ACF certification (Certified Executive Chef, Certified Executive Pastry Chef or Certified Culinary Educators) and 5 years of experience in full service Bake Shop, Restaurant, Institution, Hotel or Club; *or* [emphasis added] ACF certification (Certified Executive Chef, Certified Executive Pastry Chef or Certified Culinary Educators) and 7 years of experience in full service Bake Shop, Restaurant, Institution, Hotel or Club. (HigherEdJobs, 2018, "Adjunct")

> Culinary Arts Management Adjunct Assistant Professor – Minimum Qualifications - …Have a bachelor's degree in Culinary Arts Management *or related area* [emphasis added] AND two years of related work experience; OR, an associate's degree in Culinary Arts Management *or related area* [emphasis added] AND six years of related work experience; OR, hold a California Community College Instructor's Credential in the discipline area; OR, *the equivalent* [emphasis added].*Note: Applicants applying under the "equivalent" provision must attach details and explain how their academic preparation is the equivalent of the degrees listed above. (HigherEdJobs, 2018, "Culinary")

Then, for the sake of comparison, the following was posted in education:

> Curriculum & Instruction-Assistant Professor – Qualifications for the position include the following: Earned doctorate (ABD considered) in Teacher Education, Curriculum and Instruction, or closely related area; Ability to teach undergraduate and graduate candidates, in pre-service and advanced programs both online and face-to-face. Record of K-12 teaching experience, minimum 3 years, such experience in public schools preferred. Evidence of scholarly potential required, established record of scholarship. (HigherEdJobs, 2018, "Curriculum")

Listings like the ones above can be found on the above-named websites on a frequent and regular basis. It is important to note the lack of academic rigor in the requirements for the culinary and food related post-secondary teaching positions. Comparatively, the teaching position in education requires an earned doctorate, though the employer will possibly consider an ABD (All But Dissertation). All the above teaching positions in culinary arts only require a two-year associate degree and some "experience in the field". These postings signify that the culinary programs seeking faculty are primarily vocational in nature.

Current culinary training is essentially a self-replicating educational system in which those who teach culinary courses only know what they were taught; they have neither the experience nor the higher levels of education necessary to envision a culinary curriculum other than that which they experienced. When they mimic their own teachers and pass on the traditions

and culture of their predecessors, they perpetuate a roadblock that prevents

> raising the discipline of culinary arts and gastronomy beyond the craft/vocational level to under/postgraduate degree level…educators need to become critically reflective and knowledgeable (qualified) and enable students to learn how to learn, to become entrepreneurial and technological innovators, and to lead worthwhile lives as citizens, with a sense of mission and responsibility for the planet and the poor…[it involves] transforming craft-based vocational programs into cognitive educational ones, preparing students to become more than cooking operatives, and introducing concepts that establish culinary arts and gastronomy as serious disciplines worthy of full academic status. (Hegarty, 2011, pp. 55-65)

It is additionally arguable that there is not enough time available in current traditional culinary programs to allow for the mastering of even the necessary skills needed to be a successful cook; culinary students will still have to learn tasks through on-the-job training. An important aspect of objectives-based learning is that students must practice a behavior until it becomes automatic or second nature (Schiro, 2013). In truth, most existing culinary programs only *introduce* students to cooking skills (with the exception, perhaps, of those that require extensive apprenticeships). For example, all culinary school programs will have a learning objective that students will learn to sauté, but students will only practice this skill a limited number of times in a classroom setting—in some cases, only once—due to limited time and resources. To master the art of sauté, a person would need two to four weeks of on-the-job training at the sauté station with an experienced line cook, then at least two years of work at a busy sauté station in a fine restaurant. The average sauté cook in a fine-dining restaurant will probably prepare around 50 orders during a meal shift and 250 sauté preparations per week; by the end of two years, the sauté cook will have created close to 24,000 sautéed dishes. To become a chef, one must train in all the other kitchen stations as well; becoming a chef takes years of hard work. Once again, culinary schools and programs do not produce chefs; they produce cooks who may or may not choose to become chefs.

There is no such thing as chef school, even though programs in the study of food—electives, programs, minors, degrees ranging from associate to doctorate level—are in high demand at colleges and universities across the United States. Interest in food and eating has soared in the United States, particularly over the past two or three decades. The amount Americans spent on eating out increased from $207,464 in 1994 to $549,488 in 2014, and the amount spent on prepared foods at retail stores increased from $12,015 to $25,357 million (United States Department of Agriculture Economic Research Service, 2018, Tables 2 and 3). In 1994, Americans spent $350,674 on groceries eaten at home, and in 2014, this figure increased to $703,697 (United States Department of Agriculture Economic Research Service, 2018, Tables 2 and 3). Food-related media has become more popular, and the rise of the celebrity chef has become more frequent; studies show that people who watch televised cooking shows eat more food (Bellman, 2004; Pope, Latimer & Wansink, 2015). The bottom line is that food is big business in the United States, and that fact is unlikely to change.

What is likely to change is *how* Americans eat. Current food trends show people getting more and more of their food in ready-to-eat form, with an emphasis on freshly prepared foods that are perceived to be healthy, and consuming it away from home, as opposed to getting food from fast food franchise chains or expensive sit-down restaurants (The Hartman Group, Inc., 2015, pp. 3-5). Additionally, according to the nationally syndicated report *Culture of Food 2015*,

> Cooking is becoming a skill [that] consumers aspire to develop and is not just a domestic (previously gendered) chore. Cooking is seen as a basic life skill, cultural capital, geek exploration, life passion and participation in *fresh as less and transparency* [*sic*]. (The Hartman Group, Inc., 2015, p. 3)

Current eating trends in America will continue to impact the rapidly changing food industry, and that has created a demand for highly-educated, highly-skilled professional culinary employees who need to be trained *about food*, not just about kitchen management and cooking.

Educational Theory, Curriculum Development, and Curriculum Design

Prior to beginning to write the curriculum for the recommended and necessary paradigm shift in culinary education, I made an in-depth study of teaching, learning, curriculum design, and educational philosophy through my doctoral coursework in Curriculum and Instruction at Saint Louis University. This subject matter is deep, complex, and fraught with conflicting opinions, theories, philosophies, curricular design models and ideologies. In this section, I will summarize these and describe how they can impact—and be applied to—the design of a new curriculum. In general, they all have merit, and I believe it possible to utilize the best of each in some ways. This is because despite the number of scholarly debates on education and curriculum design, I find that for the most part, they are not mutually exclusive.

To begin, three major contributors to the field of educational theory are Bloom, Fink, and Webb. They have developed ways of looking at the learning process that can be useful to educators striving to achieve excellence in their classrooms. All are similar in that they agree that learning is a complex process that, by its very nature, goes far beyond the memorization and repetition of factual material.

Benjamin Bloom's major contribution was to promote higher forms of thinking and not just the rote learning of facts; he suggests that learning can occur in three different forms: Cognitive (mental); Affective (feeling or emotional); and Psychomotor (physical) (Bloom et al., 1956; Bloom 1965). These are commonly referred to as knowledge, attitude, and skill-based learning (Bloom et al., 1956; Bloom 1965). Additionally, Bloom believed that learning occurs

within a hierarchy, with six different building blocks or levels of learning that he referred to as domains. He also defined six major categories of cognitive processes: "Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation" (Bloom et. Al, 1956, p. 18). Additionally, Bloom et al. (1956) noted,

> Although information or knowledge is recognized as an important outcome of education, very few teachers would be satisfied to regard this as the primary or the sole outcome of instruction. What is needed is some evidence that the students can do something with their knowledge, that is, that they can apply the information to new situations and problems. (p. 38)

Some educators prefer to revise Bloom's domains into verb form, as devised by Bloom's student, Anderson: Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating (Anderson et al., 2001). The verb form is more convenient to operationalize in curricular and instructional design using specific learning objectives, whether created by professors at universities or simply aligned to local, state, and national standards for student learning outcomes at any grade level (Lattuca and Stark, 2009). Additionally, teachers can formulate learning objectives or outcomes specific to these individual domains and design assessable learning activities that can then be used by students to achieve those goals (Anderson et. Al, 2001; Lattuca and Stark, 2009).

Dee Fink describes learning as a circular and interconnected phenomenon, rather than a hierarchical one (Fink, 2005; Fink, 2013). The one significant difference in Fink's thinking is the addition of humanistic aspects of learning, which Bloom did not specifically acknowledge. Fink focused on the development of interpersonal skills, such as teamwork and collaboration (Fink, 2005; Fink, 2013). He describes the following domains of learning processes as interconnected: "foundational knowledge; application; integration; human dimensions (understanding one's self; understanding and interacting with others); caring (understanding one's values, interests, and

feelings); and learning to learn (metacognition)" (Fink, 2005, p. 9). Fink places greater emphasis on the last three listed domains—the human ones. He states that while each of the domains interact with and influence all of the others, they also all *intersect*, and that intersection is where *significant learning* occurs (Fink, 2013). Fink (2013) says that when designing an integrated course,

> We are gathering information and making decisions about how the course will be taught. We want to engage in both of these activities so that there is a high likelihood that the students will have a significant learning experience. To do this, we need to work through the course design process in a systematic way. This means completing each step before going on to the next one. This is important because the later steps build on the earlier ones. (p. 4)

According to Fink, learning is synergistic, and students who learn in one domain do not do so at the expense of *not* learning in others; learning in one domain actually enhances learning in others (Fink, 2005; Fink 2013). Learning in any of these categories is in fact significant learning, and the *most* significant of all is when students learn in all six categories. He states this " . . . is possible—if teachers learn how to design their courses properly with these goals in mind. That is the special capability of 'integrated course design'" (Fink, 2013, p. 8).

Norman Webb created a four-level process, referred to as Webb's Depth of Knowledge (DOK) levels, to analyze the cognitive expectation demanded on standardized assessment tests, curricular activities, and assessment tasks (Francis, 1996; Webb, 2002). Webb uses the term "Depth of Knowledge" to describe his thinking on student learning (Webb, 2002). Specifically, Webb's DOK concept does the following:

> designates *how deeply* students must know, understand, and be aware of what they are learning in order to attain and explain answers, outcomes, results, and solutions. It also designates *how extensively* students are expected to transfer and use what they have learned in different academic and real-world contexts. (Francis, 2016, para. 14)

Webb uses four DOK levels to explore the *how* or the context part of learning, specifically the acquisition, application, analysis, and augmentation of knowledge:

> Level 1: Recall and Reproduce . . . is the recall of information such as a fact, definition, term, or a simple procedure; Level 2: Skills and Concepts [that] require students to make some decisions as to how to approach the question or problem; Level 3:Strategic Thinking [which] requires reasoning, planning, using evidence, and a higher level of thinking than the previous two levels; [and] Level 4: Extended Thinking, [where] tasks . . . have high cognitive demands and are very complex [and] Students are required to make several connections—relate ideas within the content area or among content areas—and have to select or devise one approach among many alternatives on how the situation can be solved. (Webb, 2002, pp. 5-7).

Whereas Bloom's and other taxonomies "establish the level of thinking students will be expected to demonstrate as part of a learning experience, Webb's [DOK model] establishes the context—the scenario, the setting, or the situation—which students will express and share the depth and extent of their learning" (Francis, 2016, para. 17).

Bloom's, Fink's, and Webb's theories have merit and value to the modern conscientious educator. Francis (2016) states,

> In teaching and learning for cognitive rigor, Bloom's determines the cognition or thinking students are expected to demonstrate as part of a learning experience. That's the verb that starts the educational objective or academic standard. Webb's designates the context—the scenario, setting, and situation—students are expected to express and share what they are learning. (para. 20)

As an educator, I have found in practice that Fink's theory is the most useful. It gives credit to Bloom's original work but takes it a significant step forward in both philosophy and reflection of changing educational times. Additionally, Bloom and Fink focus on what students will *do* to indicate the level of learning; they both recognize the complexity and interaction of learning processes without becoming so encumbering as to be impractical.

Another influential educator who has influenced the curriculum design of this project is Robert Mager, author of the 1997 books *Preparing Instructional Objectives* and *Making Instruction Work.* Mager says that educators should decide what the learner should do and then facilitate the learner's doing it (Mager, 1997, "Preparing"). According to Mager, a well-written learning objective has three things: conditions, performance, and criteria (Mager, 1997, "Preparing"). He notes,

> An objective is a collection of words, symbols, and/or pictures describing one of your important intents. An objective will communicate your intent to the degree you describe what the learner will be *DOING* when demonstrating achievement of the objective, the important conditions of the doing, and the criterion by which achievement will be judged. To prepare a useful objective, continue to modify a draft until these questions are answered: What do I want the learners/students to be able to do? What are the important conditions or constraints under which I want them to perform? How well must students perform for me to be satisfied? (Mager, 1997, "Making," p. 2)

An example using Mager's process follows:

> **Objective:** The student will properly make hollandaise sauce in accordance with industry standards.
>
> **Conditions:** Culinary students would understand the *implied* condition that they would make the sauce in a food lab cooking situation.
>
> **Performance:** This is always a verb; in this case the word "make". According to Mager, it is always something that can be seen and measured; he was adamant about this and strongly advocated avoiding fuzzy terms that describe statements about the students' *being* (Mager, 1997, "Making").
>
> **Criteria:** The student must make hollandaise *properly* and *according to industry standards.*

According to Mager, a complete curriculum for any course of study can be systematically developed using this method. It can be used to develop a simple training module for a specific task, like how to set a dining table or how to change a tire, or it can be used in a comprehensive program, like training to become a chef or a nurse (Mager, 1997, "Preparing"). The measurability and accountability components have strong implications; this kind of curriculum approach produces graduates who have marketable skills.

Curriculum design can also be based on performance-based learning objectives. This is an application of what is called "behaviorist learning theory". Harasim (2017) notes,

> Behaviorist learning theory focuses on that which is observable: how people behave and especially how to change or elicit particular behaviors. Behaviorism provides a theory of learning that is empirical, observable, and measurable…Behaviorism was one of the first examples of the use of scientific method to explain human action, psychology, and learning, offering an explanation that could be empirically verified. Behaviorism introduced a way to study and to shape learning that could be repeated and replicated. (p. 11)

This notion that learning can be repeated and replicated is an important concept, and it has significantly influenced the curriculum design in this paper because there are a multitude of skills, tasks, techniques, and behaviors that are required to become a culinary professional or chef.

Finally, according to Posner, there are five theoretical perspectives on curriculum. First, "Traditional—assumes that there is a fundamental basic knowledge foundation that all educated people should know; the institution should decide these basic skills, factual knowledge etc. and ensure that all students are competent in them" (Posner, 1995, pp. 6-7). Second, "Experiential—takes the view that students will learn more if their learning is related to real life and that schools tend to be too artificial and abstract. Students learn best by *doing*" (Posner, 1995, p. 6, pp. 7-9). Third, "Structure of the disciplines—suggests that students should be encouraged to think on

their own using sound fundamental scientific approaches. They will learn to trust their own intelligence to understand a wide variety of knowledge" (Posner, 1995, pp. 11-14). Fourth, "Behavioral—finds typical education to be vague and unsystematic and determines that it needn't be so. It can be boiled down to concrete objectives of things students or graduates should be able to do upon completion of a course or degree" (Posner, 1995, pp. 14-15). Fifth, "Cognitive—emphasizes understanding over memorizing facts and stresses the use and application of knowledge as necessary for its development" (Posner, 1995, pp. 15-17). Of these five theories, the behavioral approach to curriculum supports the perspective that most students attend college for the explicit purpose of gaining necessary skills for successful employment (Hersh, 1997). Notably, "Prospective college students and their parents . . . view higher education almost exclusively as preparation for job . . . [and researchers] found a consistent public belief that higher education was a necessity for employment" (Hersh, 1997, p. 16). Because most students go to institutions of higher education to *become something*, the curricula have been intentionally designed to meet that goal. Students will have very specific sets of knowledge and skills that they must be able to demonstrate and perform to earn their professional credentials and to obtain and retain gainful employment in their chosen fields.

Reflecting on the five theoretical perspectives on education proposed by Posner, it is apparent that no one perspective is fundamentally better than any other; they are all important, and they all have significant relevance. For this reason, one could conclude that a core curriculum is good thing because it allows for a blending of the different theories. The curriculum included in this project does not have a "core" as such, but rather the essence of one built into it due to the significant number of culinary-oriented liberal arts, math, and science courses. In this way, balance and compromise are struck amidst the long-standing debate

regarding the importance of a well-rounded, liberal education and the importance of a practical, job-specific education. In 1945, the Harvard Committee concluded that "the aim of education should be to prepare an individual to become an expert both in some particular vocation or art and in the general art of the free man [person] and the citizen" (The President and Fellows of Harvard College, 1947, p. 110). This remains fundamentally true today, as students are often enrolled in highly specialized and job-specific curricular programs that put higher demands on specific learning outcomes and the study of materials that are considered vital and critical to the profession.

The degree programs posited in this paper have been developed to provide both job-specific outcomes and "the general art of the free man [person] and citizen" (The President and Fellows of Harvard College, 1947, p. 110). For this to happen, it is relevant to consider the vast diversity of knowledge graduates may need over the course of their working lives, during which they are likely to change jobs (and even careers) many times. It may well be that adaptability is the most important skill of all, and it is most likely developed through diverse and liberal education, rather than the training in job-specific skill training and knowledge acquisition. According to Bialik's *Wall Street Journal* article "Seven Careers in a Lifetime? Think Twice, Researchers Say,"

> Bureau of Labor and Statistics economist Chuck Pierret has been conducting a study to better assess U.S. workers' job stability over time, interviewing 10,000 individuals, first surveyed in 1979, when group members were between 14 and 22 years old. So far, members of the group have held 10.8 jobs, on average, between ages 18 and 42, using the latest data available. (Bialik, 2010, para. 14)

No studies were found with data that is specific to the food and culinary field, but frequent job turnover is considered common and is expected. The degree programs posited in this paper are

designed with this consideration and hopefully will more fully prepare culinary professionals with the versatility and adaptability to make these changes if they so choose.

The curricula included here have been designed with components (courses) that could be recognized as a core curriculum and could be relatively easily modified to fit into a college or university where one already exists. They are culinary specific, and it is felt that this is beneficial, but they could be more general in nature. The problem lies in defining just what a core should be. Sudermann's (2007) paper, "Toward a Definition of Core Curriculum", suggests that it is beneficial to keep a broad focus and offer alternatives and a spectrum of possibilities, rather than get bogged down in the minutia of determining the absolute nature of specific course requirements. He further offers the following considerations:

> (1) student needs and learning experience take precedence over subject matter; (2) courses form a coherent whole, integrated either through disciplines, themes, content, skills, ways of knowing, modes of teaching and learning, or a combination of these; (3) core courses emphasize discussion and group problem-solving; (4) learning is not restricted to the classroom; (5) core courses offer the study of many types of original materials, not only great books; (6) core course emphasize practice over subject matter in the disciplinary arts as they are applied to original sources; (7) core programs weave common elements together for common reflection and discussion; and (8) almost without exception, core curriculum involves a special program of faculty development. (Sudermann, 1992, p. 1)

The culinary curriculum in this paper attempts to follow these guidelines and to establish criteria that keep the liberal education needs of students in mind.

In 1936, Robert Maynard Hutchins and John Dewey engaged in an ongoing debate, with each taking a very different viewpoint of what undergraduate education in the United States should be. Hutchins' view was that students should be somewhat isolated from society and practical consequences (in the culinary and food industry we now often refer to this as "the real world") while they learned what he considered to be fundamental "truths" (Ehrlich, 1997, pp. 122-125). Hutchins was a great proponent of what he called the Great Books Project, which was

a list of 108 books that he determined were the central core of any liberal education (Ehrlich, 1997, pp. 123-124). Hutchins (1936) wrote, "Education implies teaching. Teaching implies knowledge. Knowledge is truth. The truth is everywhere the same. Hence education should be everywhere the same" (p. 66). It was Hutchins' view that a student could be locked away in a quiet library for four years while thoroughly studying those works he deemed worthy, and they would come out an "educated" person (Ehrlich, 1997, p. 124).

Dewey, by contrast, argued that this was a dangerous approach because the "truths" required the authenticity of human authority; in other words that the "truth" must become what some authority says it is (Ehrlich, 1997). He wrote, "There is implicit in every assertion of fixed and eternal first truths the necessity for some human authority to decide in this world of conflicts, just what these truths are, and how they shall be taught" (Dewey, 1937, p. 104). Dewey had a more practical view of education. His view was that students needed to be confronted with real world problems and experiences, and that these would relate to their learning by forcing them to solve those problems or relate them to their own experience. Dewey also tried to make a strong case that all education in the United States (including higher education) should have a focus on producing a better democracy. He wrote in *Democracy and Education*,

> A democracy is more than a form of government; it is primarily a mode of associated living, of conjoint communicated experience . . .each has to refer his own action to that of others, and to consider that action of others to give point and direction to his own. (Dewey, 1916/2002, p. 108)

Dewey believed that for education to be sound and purposeful, it must occur in a communal atmosphere. Students must learn in conjunction with one another and from one another, and they must relate those learning experiences to the larger community in which they live.

Over 75 years later, this argument is still ongoing. The leadership of most of today's colleges and universities continue to struggle with striking a balance between the perceived value of traditional liberal education and the practical job-related needs and demands of modern students. It is at the heart of the reasoning behind the proposed degree programs in this paper, as the courses are designed to provide the necessary skill sets needed in the culinary and food field *and* in a broad, diverse, and liberal education. There is room for both Hutchins' and Dewey's viewpoints on education, as today's Americans have a choice about which style of education they choose to pursue. A truly free society is one in which people should be able to choose what they want to study; students could contemplate the writings of Aristotle or concentrate on learning how to design a better bridge. Perhaps modern colleges and universities will evolve to the point where they can give students the opportunity to pursue *both* interests.

Curriculum design is often done using one of several models or systems. One of the oldest and most frequently used is often called "instructional systems design" (ISD). ISD was created by the U.S. military following World War II as a more effective and manageable way to create training programs (Swanson & Holton, 2001). In the beginning, the primary focal point was creating technical training programs for new recruits that were to function in a variety of standardized military work roles. There are more than 100 different variations of the model; however, almost all of them reflect the generic "ADDIE" process (analysis, design, develop, implement, and evaluate). The ADDIE model is a systematic process for the determination of training needs, the design and development of training programs and materials, the implementation of the program, and the evaluation of the effectiveness of the training (Gagne, Wager, Gola, & Keller, 2005). There are numerous variations of the ADDIE model, but most models encompass the functions of analyzing instructional needs, and designing, developing,

implementing, evaluating, and improving instruction. The use of a systematic problem-solving approach is the common thread that runs through all models. At its best, the processes and products of the phases are continuously assessed for quality with emphasis on how well they meet the users' needs. Life-cycle evaluation ensures continuous improvement of the instruction (Allen, 2006, p. 431).

The ADDIE model makes sense in many ways because it represents a continuous improvement cycle. It is intended to be: analyze, design, develop, implement, and evaluate—*then repeat.* In this way, it encourages constant adaptation and revision, which is a good thing. I believe, however, that the ADDIE system is flawed because it is too complex for "real world" educators. It makes sense for training but not for educating. These two terms are often used interchangeably, so here is an example: I think that the ADDIE model could be successfully used to *train* a restaurant server to properly set a table, yet I think that it is too complex and cumbersome to effectively *educate* a person to become and excellent, professional server. Applying the five steps to the one objective (table setting) is achievable; applying them to the dozens or hundreds of objectives needed to train a server would take too much time and too many resources. Allen (2006) concurs, saying, "When properly implemented, ADDIE has a proven record of creating training that results in learners acquiring specified expertise, a foundation of performance" (p. 440).

More recent—and, I believe, more useful—models include Universal Design for Learning and Backwards Design. The Center for Applied Special Technology (2012) is widely accepted as the primary source for information on Universal Design for Learning (UDL) in the field of education. UDL can also be defined as "a set of principles for curriculum development

that give [sic] all individuals equal opportunities to learn" (Basham et al., 2010; Jim´enez, Graf, and Rose, 2007; Meo, 2008; CAST, 2012, para. 1).

CAST outlines three core principles of UDL: multiple means of representation, multiple means of action and expression, and multiple means of engagement (Rose and Meyer, 2006). "Multiple means of representation" means that course learning materials and course content are presented in several media formats with a wide variety of examples. "Multiple means of action and expression" means that students will have choices in how they will work with and learn the materials, and how they will demonstrate their understanding. "Multiple means of engagement" means that students can discover their own specific interest in the course material. This in turn sparks sustained learning effort, recommends authentic activities, and encourages collaboration.

Universal Design was originally a concept used by engineers and architects. It refers to designing buildings and commercial products that are accessible and/or usable by all kinds of people, and it specifically applies to insuring compliance with the Americans with Disabilities Act. "The concept of Universal Design, which originated in the field of architecture, refers to products, structures, and procedures designed with all potential users in mind (Pisha and Coyne 2001, pp. 197-203; Scott, McGuire, and Shaw, 2003). There is more to Universal Design than just accommodating people with disabilities; it is about designing the best for *everyone*. In terms of learning, universal design means the design of instructional materials and activities that makes the learning goals achievable by individuals with wide differences in their abilities. Students may have very different capabilities to speak, move/lift, read, write, do math, hear, see, understand English, attend, remember/memorize, and engage. Having poor reading skill is not a handicap, but good UDL will provide the necessary opportunities for learning so that a poor reader can have access and learn in other ways. "The idea is that it is flexible and curricular materials are

designed to provide alternatives for students with very differing abilities. These alternatives are built into the instructional design and operating systems of educational materials-they are not added on after-the-fact" (Council for Exceptional Children, 1999, p. 2).

Even the best Universal Design cannot provide for the needs of virtually everyone, and some accommodations will always be needed for certain students with disabilities. As an example, a deaf student might require the accommodation of having a sign language interpreter in class. A Universally Designed curriculum would not have an interpreter in every classroom. It would be too inefficient. Also, sign language would only help people who could understand it, and while it is not always the case, UDL will benefit a variety of students. Having closed captioning on videos shown might be reasonably included in all classes. This would benefit a student with a hearing disability, but many other students with perfect hearing might find it helpful in understanding subject material. Generally, applying UDL in curricular design will assure full access to the content for *most* students and minimize the need for specific accommodations.

An automatic door at a train station benefits people confined to a wheel chair but is also convenient and beneficial to ambulatory people with lots of luggage in tow. It might reduce the risk of flu and other diseases that can be transferred by contact with door handles. An open door is even welcoming and might promote inclusion. Automatic doors are helpful for everyone. Of course, legal accessibility is important, and all school facilities need to be built to accommodate people with disabilities. Further, accessibility in education may require the provision of alternative media formats, adaptation for people with hearing or sight loss, or the allowance of service dogs on the institution's property. As Universal Design has been adapted from the realms of production and architecture to that of education, it has moved beyond design simply for the

allowing of access to people with disabilities or other disadvantages. By embracing design for everyone, we eliminate the need to think in terms of accommodation in most cases because the point of good UDL is to create curriculum that will *avoid* the need for accommodation as much as possible. Accommodation means we are doing something different and special. For example, if a teacher assigns his/her students an online PowerPoint presentation to study and creates a voice-over to accompany it, this is not merely an accommodation for potential blind students. Blind students would not need any accommodation because they could listen to the material. The convenient feature of the voice-over would be that students with sight might better learn the material in the presentation due to their ability of simultaneously hearing and seeing it. Similarly, creating PowerPoints using big fonts is just plain good use of the technology. Nobody wants to squint and strain to read a slide; it's better to just have more slides. This makes it easier for everyone to see it, and if there is a student in the class who does not see *well* they will not require a special accommodation.

"Universal Design refers to the planning of spaces, activities, and resources to allow for the participation of people of the widest possible range of abilities and differences without additional adaptation. The goal is to have the adaptation built in. A movement that started in the mid-twentieth century design of commercial products and was later expressed in architecture has now found its way into education as the next step beyond accommodation" (Tobin, 2018, p. 33). Educators are designers, as are architects and engineers; they design curriculum, lesson plans, learning spaces, and learning experiences. The goal behind Universal Design in curriculum development is to create curriculum that is easily accessible to the widest range of students possible.

One benefit to using Universal Design in curriculum development is that steps taken to make the educational material accessible to one person or group of persons generally improves the quality of education for everyone, much like an automatic door designed to provide access to people in wheel chairs is beneficial to many. Curricular design that makes extensive use of various audio and visual means of communicating course material would certainly benefit a student with a reading disability. Importantly though, it will likely benefit other students as well because even students with strong reading skills find that the knowledge of the material that they have gained through reading is enhanced by the additional media and different coverage. When we begin to think in terms of Universal Design, we start to recognize and to design for and teach to the fact that everyone learns in different ways. In fact, while some people come to understand material very easily in one way, others may not comprehend it at all. Consider the old professor of history who said, "I stood there all semester and told them everything they needed to know, and it's all right there in the book; still, half my class failed the comprehensive final." This professor does not understand that all students, even dedicated and smart students, don't learn very well just by reading chapters and listening to lectures. Good teachers naturally intuit this and begin to build layers of experiences to convey information. When this professor decides to add a field trip to the history museum to see a medieval armor collection and to assign students a documentary and a Hollywood movie to watch to see if that helps reach more students and improve success rates on the final, he has *begun* to consider Universal Design. In theory, the more we use Universal Design, the more different approaches we take to the material; the more different learning capacities of myriad individuals we consider, the stronger the curriculum becomes. It becomes a natural process for continuous improvement.

By continuously thinking how curriculum design and planned learning experiences can best reach as many people as possible, we begin to naturally disassociate Universal Design from the notion of disability and accessibility and focus rather on inclusivity. “When we change our mind-set—when we chop off the end of the word accessibility and think only about access—we free ourselves to create colleges and universities that truly serve the needs of an increasingly diverse population of learners” (Tobin & Behling, 2018, p. 1). By doing so, we make it possible for more people to get the education that they need, and we respect people with varying ethic, gender, socioeconomic, and educational backgrounds.

> We know the people with disabilities are only one group of marginalized learners, and that many others are challenged by institutional, situational, and dispositional barriers [6]. I argue for a broader application of UDL that intentionally designs courses for students with a breadth of life diversities – including family situation, language of origin, poverty, health, work, living condition, negative educational histories, incongruence with community of origin, and different levels of support [6]. Without intentional design for diverse student, education is part of a systematic oppression that privileges learners “like us” at the expense of marginalized learners - thus extending the oppression from k-12 education and other societal institutions.” (International Conference on the Future of Education, n.d.)

In addition to making it easier for learners to achieve their goals, using Universal Design may make teaching easier as well by providing a convenient way to think about planning curriculum and learning experiences and eliminating the need for creating special accommodations. “Universal design for learning (UDL) encompasses an effective approach to classroom procedures, ensuring that instruction is designed to be accessible to all potential learners. In contrast to the traditional model of modifying lessons for special-needs learners, UDL calls for designing lessons for all learners from the start” (The Clearing House, 2014, p. 168).

The concept of Universal Design may have its roots in recognizing and providing for people with disabilities, but it has evolved into a better way of recognizing the differences and differing needs of all individuals.

> In short, Universal Design became a conceptual framework that supports the civil rights of all American citizens. It reduces the need for people with disabilities to have to ask for special treatment through accommodations (making one change, one time, for one person), instead promoting a more holistic existence through the UD that is aimed at making life easier for everyone. (Tobin & Behling, 2018, p. 23)

UDL should provide students with multiple ways to access, process, and represent their learning. Learners are given the opportunity to watch, read, listen, write, talk, draw, act, experiment, and more. In this way it becomes possible for people who learn in various ways to find success.

> When applied to learning, UDL is designed to promote physical, social, and academic spaces that support meaningful access and function to a range of learners . . . some students will access content through group discussion, others may choose teacher-led lessons, and still others may conduct research using various media. In terms of representation of learning, some students may write a report, some may create a multimedia presentation, and some may perform a skit. It is important to note that in all cases, the criteria for assessment of learning goals remain consistent. In effect, the learning endpoint goals stay the same, and it is the ways that students get to that endpoint of learning that is made more diverse. (Katz & Sokal, 2016, pp. 12-13)

Good teachers intuitively understand that presenting course materials in a variety of different ways makes understanding accessible to the widest possible range of students. In this way, almost all curriculum design is done using at least some aspects of Universal Design. By planning curriculum and learning experiences more formally in accordance with the tenets of Universal Design, educators not only provide better opportunities for more students to achieve understanding of course material and academic success, they also introduce a way of thinking and planning that better adjusts to changes in students' learning capacities over time. This is

because Universal Design for Learning is adaptive to modernization in teaching and to teaching using technology.

For example, in Jason Palmer's review of how law students used UDL-varied materials to study for courses, he discovered that "significantly, as many as 50-70% of the population are 'multi-modal learners,' those who prefer to use two, three or even four different learning styles" (Palmer, 2015, p. 675). This is highly relevant because as students become accustomed to accessing information (and therefore learning in broader ways and in a greater variety of ways), so must educators be prepared to deliver the material in such ways that students can access it. And students access information and coursework via technology. Project Tomorrow's Speak Up Survey identified the following top ten technology usage trends among U.S. students:

1. Personal access to mobile devices
2. Internet connectivity
3. Use of video for classwork and homework
4. Mobile devices for schoolwork
5. Using different tools for different tasks
6. Paying attention to the digital footprint
7. An increased interest in online learning
8. Gaming is growing, and the gender gap is closed
9. Social media in schools (Riedel, 2014).

In 2019, colleges and universities will see the first real influx of the generation following the Millennials—Generation Z. These students, now entering post-secondary programs, have lived in the 21st century their entire lives. Most were handling smart phones before they learned to read, and they have taken the Internet for granted; for them, there is nothing new in

technology. As Philip Preville (2018) explains, "the postsecondary post-Millennial generation's social lives are almost entirely online; they expect to have the content they need on demand (not out of entitlement, but because that's how it's always been for them); and they prefer watching videos over reading text."

Today we continue to see technological advancement staying ahead of education. This means that the best ways for people to learn may be overlooked. Universal Design dictates that we must design curriculum and instruction to be accessible to everyone. Since Generation Z is certainly part of "everyone", we must design for them. And again, improved design for Generation Z should make the education better and more available for other generations as well. Importantly, this rapidly changing technology and the need to adapt to the evolving learning needs of students of all ages will continue. In fact, according to Klaus Schwab (2016), "We stand on the brink of a technological revolution that will fundamentally alter the way we live, work, and relate to one another. In its scale, scope, and complexity, the transformation will be unlike anything humankind has experienced before" (p. 29).

Technological progress is not slowing down; rather, it is speeding up exponentially. We continue to see amazing breakthroughs, with computers having unprecedented power and speed, and billions of them becoming more linked and integrated. We will quickly see the emergence of real technology; artificial intelligence, 3-D printing (and 3-D *food* printing), advanced robots, biotechnology, incredibly powerful batteries, self-driving cars and a plethora of drones exist now and will become commonplace before we know it. All these technologies (and many others) will be propelled into the future, not only by human beings, but also by the Internet of Things (IoT). The IoT is the connection on the internet of myriad non-human entities. According to Aggarwal, et al. (2012), the

> "Internet was about data created by people, while the next version is about data created by things." The best definition for the Internet of Things would be: "An open and comprehensive network of intelligent objects that have the capacity to auto-organize, share information, data and resources, reacting and acting in face of situations and changes in the environment." (Aggarwal et. al, 2012, pp. 51-56)

Relating this all back to Universal Design for Education, the key is that we need to design curriculum for the best learning outcomes by all students. This idea goes well beyond the notion that we should design to include people with disabilities. It also goes further than simply including lots of state of the art technology in education. To best reach all students, we must go beyond replacing a traditional method of information presentation with another. It needs to be more than replacing a slide or overhead projector with PowerPoint and a big monitor. Using technology to enhance traditional means of teaching and learning is a step in the right direction. Bailin Fang (2014) refers to "the use of mobile learning combined with more traditional in-place learning as *fluid learning*, which focuses on the flow of learning between mobile and non-mobile devices, such as a desktop computer." In fact, as education evolves to *universally* serve the needs of students, integrated technology becomes the immersive atmosphere in which learning occurs.

> With the world we live in being constantly transformed by previously unimaginable advances and the ethical dilemmas that come with them, educational redefinition must evolve where technology is used beyond the creation of new learning experiences…If education is to keep pace with the Fourth Industrial Revolution outside of our schools, it must empower our next generation to be both solutionary and socially conscious. (Doucet, Evers, Guerra, Lopez, Soskil, & Timmers, 2018)

There are some good arguments in criticism of UDL. One is that there is a lack of empirical evidence and research that validate it in terms of learning outcomes (Edyburn, 2010, pp. 33-41). It may be that research to test such a broad subject is difficult to design. Measuring UDL as a *whole approach* to education is potentially hard to measure. Still, many of the *components* can be and have been studied. "Many of the specific techniques, pedagogies,

technologies, and tools embraced by the UDL approach have empirical validation as referenced on the CAST website, but the framework has yet to be empirically investigated in a substantive way" (International Conference on the Future of Education, n.d.).

Another argument is that UDL is not realistic or possible. This argument has two facets: one is that it is not possible to design education so that all learners can achieve the same goals or ultimate learning outcomes, and the other is that *if* the design is such that they can, then academic rigor must be compromised. This seems true if taken literally. Surely, we cannot presume to design a course of study whereby a person with a severe mental disability or learning disorder can master a subject like differential equations. UDL can certainly be misused and mismanaged. An accounting class where students participate in group discussion, act out a play, and produce a film may look like UDL, but if the purportedly intended (students understanding accounting principles) is compromised, then rigor is as well. I agree with these criticisms. However, I do not think that they delegitimize the use of UDL because it is a *process*—not an end result. In fact, it is a process of continual improvement; it is an ideal. It can be implemented incrementally.

In conclusion, Universal Design for Learning is very *flexible* rather than accommodating. Students are presented with a variety of ways in which to learn and explore subject material, as well as to demonstrate what they have learned. The latter part of that is important in practical fields like culinary arts. For example, a student who does not have the numerical recall to identify 185-205 degrees Fahrenheit as the proper temperature for simmering foods on a standardized multiple-choice test might easily recognize a simmering liquid in a working kitchen by looking at the bubbles being formed and their quantity and size, or even by sticking their finger into it. Key to Universal Design for Learning is that all students must be *engaged.* Being

engaged means that students have a commitment to learning and a drive to succeed. *Representation* is also important; educators must constantly ask the question, "How can the necessary information be presented in ways that reach all learners?"

As has been previously stated, most education available for culinary professionals today is based upon tradition. The focus is on teaching *content* rather than on teaching *people.* Students are taught the things that their instructors were taught when they were in culinary school. The information comes first. It suggests that we can get our curriculum from a textbook (or, perhaps several). A culinary program might teach Wayne Gisslen's *Professional Cooking, Ninth Edition*, and assume that because it is a venerated text, it contains all the knowledge culinary graduates should need. It is a focus on teaching subject matter and materials rather than on learning, outcomes, and understanding.

Backwards Design refers to a method of creating curriculum that involves putting the emphasis on the learning, the outcomes, and the understanding. It requires that we first decide what our students need to know and what things that they need to *do* (skills). It may be that the idea of Backwards Design originated with Ralph Tyler; although he utilizes it, it is not evident that he ever used the specific term. Rather, he refers to a "statement of objectives", which he described as a list of changes that a student would manifest upon completion of instruction. Once these desired changes are known, instructional activities can be planned so that students will most likely attain those goals. "Educational objectives become the criteria by which materials are selected, content is outlined, instructional procedures are developed and tests an examination are prepared . . . the purpose of statement of objective is to indicate the kinds of changes in the student to be brought about" (Tyler, 1949, p. 145). The actual term "Backwards Design" may have been previously used in manufacturing but appears to be first used in the educational sense

by Jay McTighe and Grant Wiggins in their 1998 book, *Understanding by Design* (p. 7). Their Backwards Design process involves three phases in the design of curriculum. The first is to determine the end result of the education to come, to first develop learning objectives or outcomes. The second is to determine how to assess if those goals have been achieved (this is a matter of figuring out what evidence will reveal that learning objectives have been met). The third is to create curriculum, lesson plans, and learning experiences that will lead to students successfully demonstrating their learning through the planned assessments (Wiggins & McTighe, 2005, pp. 17-20).

The idea of Backwards Design is often framed by the analogy of traveling to a destination. The first step is to determine where to go. Step two would be to look at a map and plan a route to get there. Step three (the assessment) would be arriving at the destination. Referring to this analogy, Wiggins and McTighe formalized the process for Backwards Design even further with the introduction of their WHERETO model. This is an acronym for:

Where are we going? By this they mean that before we plan a trip we must know the destination. For educational purposes, it is important that students know what is expected of them. They should know the purpose of the education to come, understand the outcomes or objectives for learning, and be fully aware of the planned assessment they will be expected to successfully complete.

Hook the student. Begin the learning by fully engaging the student in the process, by providing thought-provoking and focusing experiences.

Explore and equip. Provide learning experiences that cause students to pursue leads or hunches, research and test ideas and try things out. Students become prepared for the final performances (assessment) through instruction and coaching.

Rethink and revise. Based on the results of planned learning experiences, we should adjust as needed based on real-time student input, self-assessment, discussion etc. to ensure desired outcomes are fully met.

Evaluate understanding. This involves the student's demonstration that they have met learning objectives. It should also identify remaining questions, set future goals, and point towards new lessons and learning outcomes.

Tailor the work to ensure maximum interest and achievement by the student. This means personalizing learning experiences to most effectively engage students and provide for their success.

Organize and sequence the learning for maximal engagement and effectiveness, given the desired results. (Wiggins & McTighe, 2005, p. 354)

Essentially, when using Backwards Design, we create curriculum in such a way that students *do the things that lead to understanding or the adequate preperformance of skills.* "Deliberate and focused instructional design . . . involves thinking a great deal, first, about the specific learnings sought, and the evidence of such learnings, before thinking about what we, as the teacher, will do or provide in teaching and learning activities" (Wiggins & McTighe, 2005, p. 14). It is possible to have learning without understanding, and that is of little use. Therefore, when we design curriculum backwards, we must ensure that we do so with the usefulness of the learning outcomes at the forefront. In the culinary field, students are taught to calculate operational food cost as a percentage of total sales, but being able to correctly execute the calculation is meaningless without context. The student must realize that other expenses are calculated the same way, and that if after being tallied, the percentages add up to more than 100%, the organization is losing money. According to Wiggins and McTighe (2005),

"Answering the 'why?' and 'so what?' questions that older students always ask (or want to) and doing so in concrete terms and as the focus of curriculum planning, is thus the essence of understanding by design" (p. 15).

For Backwards Design to be effective, outcomes must be carefully and clearly stated. Further, it is important that they are stated in a way that can be measured. " . . . we ask designers to consider the following questions after framing the goals: What would count as evidence of such achievement? What does it look like to meet these goals? What, then, are the implied performances that should make up the assessment, toward which all teaching and learning should point?" (Wiggins & McTighe, 2005).

Backwards Design also works backwards in a "big picture" way. To design an entire curriculum or program of study, the ultimate outcomes must first be established. Before decisions can be made as to what courses students should take, it is necessary to specify what the student is supposed to *know* and *be* upon completion. This means starting with program-wide objectives or learning outcomes. These will define what things the graduate must understand in terms of essential concepts, what information they must know, what thought processes of physical tasks they are able to perform, and what assessments they will pass.

Once overall program objectives are established, curriculum developers must next determine what evidence of their achievement is acceptable. This evidence comes in the form of learning assessment, and this must occur while the student is involved in the curriculum. Much of the assessment for overall program objectives is embedded in individual course structures. For instance, a broad objective like, "The student will demonstrate an understanding of profitability in banking and other financial service institutions" will likely have assessments in several different classes within the program. This would include things such as assignments,

presentations, posters and workbooks, as well as traditional quizzes, tests, comprehensive examinations, and others. Other assessments may be partially embedded, as when a class has an outside-administered examination for credentialing or certification. Standardized testing, portfolio development and evaluation, practical hands-on testing, capstone courses, and projects and work experiences like internships are additional means of assessment for program-wide objectives.

With these assessments of the overall objectives in mind, curriculum developers can now (again, by working *backwards*) begin to design learning experiences that will lead to the successful completion of the assessments. Although there are sometimes negative associations with teaching to assessments ("teaching to the test"), that is exactly what Backwards Design does.

> Advantages of teaching to the test include teaching the skills and content areas that will be represented on a test, the increased revision and development of aligned curriculum maps, the need to truly determine whether or not teachers are teaching effectively and students are actually learning, the shift from teacher-centered to learner-centered accountability, and the increased emphasis on testing in both the academic and professional environment." (Styron & Styron, 2012)

In Backwards Design, there is nothing wrong with teaching to the assessment because the first decision made in the education process is to determine *exactly* what the student must learn, then what assessment will show that the student has accomplished that goal. The negative connotation regarding teaching to assessment derives from teaching to tests that are general and not specifically related to a particular program or specific students. This happens when the assessment is designed *first.* It's a matter of why the assessment is taking place. Assessment should be done to ensure that the student has accomplished some learning goal or objective, not to discover if they may have learned anything from subject materials that have been covered.

Next, as these learning experiences are developed and considered, they are sorted into groupings that make sense. These groupings are then formed into individual courses in the program, based on college policies involving credits and typical scheduling needs. Educational experiences that lead to the ultimate attainment of overall objectives may also progress from general to more specific. "The student will demonstrate fluency in important accounting skills and terminology" may be derived from the earlier "The student will demonstrate an understanding of profitability in banking and other financial service institutions". The one objective is a part of the other. At the course level, it will likely be broken down into even more specific and measurable objectives, such as "The student will produce and explain an accounting statement of cash flows". Once specific course objectives are established in the syllabi for all courses, lesson plans can be produced, and assessments fine-tuned down to ever more precise measurable outcomes.

Understanding is a foundational key to Backwards Design. "There are many different ways of understanding, overlapping and not reducible to one another and, correspondingly, many different ways of teaching to understand" (Passmore, 1982, p. 210). One way of determining "understanding" is that " . . . you only understand it, we say, if you can teach it, use it, prove it, connect it, explain it, defend it, read between the lines and so on . . . students must perform effectively with knowledge to convince us that they really understand what quizzes and short-answer tests only suggest they get" (Wiggins & McTighe, 2005, p. 82). Because "understanding" is a multidimensional and complicated thing, it can be difficult to measure. To make matters worse, there are different ways of understanding, different types of understanding, different methods of arriving at understanding, and, of course, overlap. Wiggins and McTighe have developed a six-sided view of what constitutes mature and thorough understanding.

When we truly understand we:

- *Can explain*—via generalizations or principles, providing justified and systematic accounts of phenomena, facts, and data; make insightful connections and provide illuminating examples or illustrations.
- *Can interpret*—tell meaningful stories; offer apt translations; provide a revealing historical or persona dimension to ideas and events; make the object of understanding personal or accessible through images, anecdotes analogies, and models.
- *Can apply*—effectively use and adapt what we know in diverse and real contexts—we can "do" the subject.
- *Have perspective*—see and hear points of view through critical eyes and ears; see the big picture.
- *Can empathize*—find value in what others might find odd, alien, or implausible; perceive sensitively on the basis of prior direct experience.
- *Have self-knowledge*—show metacognitive awareness; perceive the personal style, prejudices, projections, and habits of mind that both shape and impede our own understanding; are aware of what we do not understand; reflect o then meaning of learning and experience. (Wiggins & McTighe, 2005, p. 84)

In summary, good Backwards Design requires that educators keep outcomes and the idea of student understanding at the forefront. Part of what a curriculum designed to develop student understanding will do is "teach" students that their job is not merely to learn facts and skills, but also to investigate them to divine their meanings. The term "*uncoverage* summarizes the design philosophy of guided inquiry into big ideas, whereby knowledge is made more connected, meaningful and useful" (Wiggins & McTighe, 2005, p. 104). The term "big idea is the core

concepts, principle, theories and processes that should serve as the focal point of curricula, instruction and assessment" (Wiggins & McTighe, 2005, p. 338).

In conclusion, Backwards Design in curricular development eschews traditional content-based and teacher-focused learning in favor of a result-oriented, student-centered one. We do not start with the assumption that a student should take a certain course because that course is offered in similar programs of study. We cannot design a culinary curriculum to include a class in purchasing just because we find a similar course in the catalogs of other schools. Further, it is more important for students to "uncover" an understanding of course materials than it is for teachers to "cover" them. We should not choose Kotschevar and Donnelly's "Quantity Food Purchasing" and then proceed to *cover* the chapters and test students to determine how much of those chapters they can regurgitate.

Instead, we begin by determining the desired results, outcomes, and understandings. We start with the big ideas of understanding. In this example, it might be "Students will understand how food-related businesses are managed for profit." We then ask the question, "Then what things will the student do to show that they have gained that understanding? What capacities, knowledge of facts, and skills are demonstrative of it?" As we develop that list of proofs (assessments) and we see that there are many of them related to the purchasing of products for those businesses, they then coalesce into a course. So, we move backwards from big idea outcome (understanding profit) to a component of that outcome (understanding purchasing) which, in turn, will have additional component outcomes, like having the ability to determine what grade of beef to buy that will maximize profit for an operation in a specific situation. To "teach" each outcome, we first determine how we will know the student has achieved the outcome. Perhaps we say that students must "Define and explain the USDA grades for beef and

the best utilization of each", and the actual assessment is that students do so on a test. Now, working backwards again, we can begin to determine what experiences will ensure that the student defines and explains correctly and adequately come the time of the test. Lastly, we plan and execute "lessons"—units of experience. The emphasis moves from teaching to facilitating and coaching students' learning. Educators who are focused on experiences that *best* lead to students achieving the desired outcomes are ones that are diverse and less traditional. Most students don't learn and achieve those outcomes best by reading an assigned chapter in a textbook, then listening to a lecture during which the teacher reiterates the text material while the student takes notes (maybe) and then "studies" for a test. Finally, the traditional teaching method of "read, lecture, write it down" may often lead to students "learning" knowledge that they *do not* need. This goes back to coverage: the text covers it, so the teacher covers it, so the student must learn it, even though it may be unimportant. This is why we must start at the end; we must begin with determining what is important and not what is in the book. There are eight grades of beef covered in almost all food purchasing textbooks: prime, choice, select, standard, commercial, utility, cutter, and canner. Countless thousand of culinary students have memorized and regurgitated these only to discover later in the "real world" that only the first three exist. One cannot buy standard, commercial, utility, cutter, or canner beef because it costs money to grade beef, and it is not worth paying to grade low quality beef. Therefore, it is all sold as ungraded. This is not only a wasteful and inefficient use of both the teachers' and the students' time; it engenders the perception by the student that the material being presented to them is unimportant and/or irrelevant. This, in turn, causes disinterest, lack of engagement, and ultimately a lack of actual learning, as students come to see school as something that they must grind through rather than as a substantive experience that will help them in their careers and lives.

In criticism of Backwards Design, there are several things worth considering. One is that it makes teaching and learning too compartmentalized. Using it to its fullest extent in the design of a college degree, for instance, would mean designing literally thousands of learning outcomes. One of the important tenets of Backwards Design is that students are aware of what those outcomes are, of what is expected of them as the learner. Being exposed to thousands of outcomes and assessed upon them may become tedious, boring, and overwhelming. Education may become disjointed as these "bites" of learning don't seem to have continuity and feel artificial. For the educator, this extreme micromanagement of discreet learning objectives, development and creation of instructional materials, and their assessment can be so time consuming as to be impractical, if not unpracticable. Finally, while proponents of Backwards Design recognize what they refer to as collateral learning, this may well be compromised by the continual focus on very specific outcomes.

> Collateral learning is the way of formation of enduring attitudes, of likes and dislikes, may be and often is much more important than the spelling lesson or lesson in geography or history that is learned. For these attitudes are fundamentally what count in the future. The most important attitude that can be formed is that of desire to go on learning . . . exercise in the actual conditions of living has given them the precious gift of ability to learn from the experiences they have. (Dewey, 1938)

Backwards Design may get so bogged down in the details of identifying, teaching, and assessing specific outcomes that it becomes too inflexible to allow for genuine, organic learning to occur. It may become depersonalized and inflexible and may impede certain aspects of education, such as learning to learn, creating a curious mind, and developing wisdom or common sense. For these reasons, it may be helpful for educators who use Backwards Design to temper or moderate its use by incorporating other educational theories in conjunction with it.

Summary

In this chapter, I have provided an overview of food-related education programs that are available today and demonstrated a gap in curricular programs for culinary professionals. The historical background for culinary education showed the deep traditions, long history, and slow, unintentional, unsystematic evolution of culinary training. Much of the current culinary curriculum is stagnated by a self-replicating system in which faculty teach the content they were taught when they were in school, in the style and manner that they were taught. Curriculum design models and educational theories presented in this chapter can help culinary educators as they design improved curriculums for culinary professionals. Current culinary educators fail to teach the most current methodologies, technologies, and cultures of food systems in America. To be successful, modern culinary professionals need academically rigorous, updated, liberal-arts education, in addition to experiential education cooking in a food lab kitchen. It is time for a fresh look at culinary and food-related studies because while the available training for culinary professionals has changed little, the world and our knowledge of food has changed a great deal. There is a very real demand for highly-educated, thoroughly-trained culinary professionals in a wide variety of jobs, including the position of chef. Numerous educational and learning theories have been reviewed, along with several models of curriculum design. Of particular importance to this project are the design of educational objectives as identified by Hutchins and the curricular models of Backwards Design and Universal Design. Chapter 3 will discuss how these were applied and used in the design of the curriculum for culinary professionals and describe the process in which it was developed.

CHAPTER 3: PROJECT DESCRIPTION AND RATIONALE

Introduction

In the preceding chapters, I have built a case justifying the need for a new degree program for the study of culinary art and suggested that currently available programs are intended to train skilled tradesmen cooks rather than culinary professionals. The purposes of this chapter are: 1) to provide a description of the new, recommended culinary and food curriculum, 2) describe the theory and reasoning used in its design, and 3) provide an explanation of the process used in its creation. The degree program has been developed to fulfill the need for generalists in the culinary and food field, referred to as *culinary professionals*. A culinary professional will need training that embraces both traditional, hands-on culinary education and the academic rigor of a university-level liberal arts degree. It is inefficient and unrealistic for people to pursue multiple college degrees; therefore, a new paradigm in culinary education would combine the best of both degree paths. This new paradigm would be a shift in curriculum to include more exposure to liberal and scientific academic fields *and* provide better hands-on training in food and culinary arts. The new curriculum culminates in a complete, rigorous bachelor's degree in culinary arts and food that is specifically designed to produce graduates who have the necessary culinary skills *and* general education to pursue careers as culinary professionals.

Degree programs in Food Science, Nutrition and Dietetics, Agriculture, and Hotel and Restaurant Management are well-established at major universities. Their curricula are clearly defined by tradition, accreditation, and specific qualifications for jobs in those respective fields. The rationale for a new curriculum built exclusively for culinary studies is based on the notion that there is a need for a degree program designed specifically for people who want to become

culinary professionals. It will provide an excellent path for those who want to pursue careers as chefs and be versatile enough for students who wish to pursue food-related careers, such as kitchen manager, food writer/blogger, food stylist/photographer, food innovator/entrepreneur, food scholar/teacher, food journalist, restaurant consultant, and ready-to-eat foods grocery manager, among others. Students will have the flexibility to customize their education in relation to their strongest food-related interests and have the skills and culinary background necessary to work through a kitchen brigade to become chefs. Modern culinary techniques will be learned in extensive hands-on kitchen lab classes and broad liberal education will be acquired in addition to the practical skill set necessary to thrive in a professional culinary workplace.

Description of the New Curriculum

The new curriculum is based on a three-tier culinary program that moves from a certificate, to an associate degree, to a bachelor's degree. The level of academic rigor of the culinary arts bachelor's degree will be equal to that of other majors at colleges and universities. Students will learn factual knowledge needed for culinary work, gain the skills and techniques of cookery, and receive a broad liberal education commonly associated with college graduates of all degree programs. Graduates will learn oral and written communications skills, critical thinking, problem-solving, team dynamics, and team environment, and be prepared to be productive, active, and involved American citizens.

Currently existing culinary programs generally have open enrollment admissions policies and are available to anyone with a high school diploma or equivalency, perhaps suggesting that people attracted to the culinary field do not need strong academic backgrounds. This new culinary program is also intended to have open enrollment, be free from elitism and exclusivity, and be attractive and interesting to highly qualified students who could be admitted to any

number of prestigious programs, fields of study, or universities. The only admissions requirement beyond a high school diploma or equivalency is for the student to have the physical ability to perform the manual labor tasks that are required in kitchen work. Specific policies regarding the assessment of a student's physical ability to perform that kind of work would be put forth in accordance with the university's Americans with Disabilities Act (ADA), compliance officer, university policies, and any local or state legal requirements.

If implemented, it is anticipated that this program will attract a wide variety of students who have very different backgrounds and goals. For this reason, the new curriculum will have a stepping-stone, multiple-tiered design intended to promote retention and lifelong learning. In accordance with a university's and a state's credit-hour requirements, the program will be a three-tiered experience, offering a one-year certificate, a two-year associate degree, and four-year bachelor's degree.

It should be clarified that there is nothing wrong with vocational or occupational training, and some students may decide to stop after earning a one-year certificate. The certificate is designed to deliver vocational training, and its recipients would be employable as professional cooks and in other entry level food-related jobs. The certificate may provide the necessary credentials for students to get the jobs they need for further schooling, and it is anticipated that many students in all three phases of the program will be working in the field. Overall, the program is also designed with enough academic rigor that graduates can continue to the next degree level if they so choose, including bachelor's degree graduates going on to graduate school. This new degree program acknowledges that many students take a stop-and-go approach to education; a person with a certificate or an associate degree may decide to work in the industry for a while before returning to school to complete a bachelor's degree. The environment

and culture within the program needs to be managed so that students never feel demeaned or discouraged if they choose to stop their education, and students will understand that they will always be welcome should they choose to return to school. Another intention of this program is to encourage students on their educational journey, and to teach them how to learn, how to find success and satisfaction in learning, and how to have fun throughout the process of learning. Hopefully, this enlightened approach to higher education will encourage students to continue through the tiers of the program and to complete their bachelor's degree, rather than be stigmatized for delaying their education.

Throughout this paper, it has been clearly stated that students entering currently available culinary programs often have the end goal of becoming a chef, even though no program can provide the training necessary to achieve that career immediately upon graduation. Becoming a chef is a work-your-way-up, learn-and-develop-as-you-go profession. For this reason, all students entering this new culinary program will be required to complete a three-hour (contact hours-not credit hours) course in Culinary Career Guidance before being allowed to move forward with any other culinary classes. This course will be designed to provide realistic expectations about the culinary program, specifically that culinary school is not a chef school, and that no such school exists. Students in this course will learn that not all culinary program graduates can or will become chefs. The real-world process for becoming a chef will be explained clearly. Students will learn the expectations for each level of the three-tiered culinary program, as well as the advantages and drawbacks of each graduated level. The gist of this initial course will be to educate students on what to expect in a culinary education and to enlighten students on other excellent food-related careers available to highly educated culinary professionals. The end result of this course will be that some students may become highly

motivated, and some students may decide that this program is not right for them; both are desirable outcomes. At the vocational level, plumbers, electricians, and welders make far better incomes than cooks with certificates or associate degrees. At the professional level, students who seek bachelor's degrees might do better to discover a field that is of greater interest to them, perhaps in business or liberal arts. Students will be admonished that working in the food industry and becoming culinary professionals should be a career of first choice and not one of last resort.

Because of the diversity of students expected to enroll in these culinary programs, the curriculum is designed to provide students with similarity and consistency. Courses and terms are designed to be familiar and similar in structure. Each term would be planned with consistent, blocked scheduling that contains a cooking and food-related class offered in a classroom-online hybrid modality and taught in conjunction with a physical hands-on kitchen lab. It will also include a food arts class, a food management class, and a liberal arts class. It will be possible for a full-time student to have an identical schedule for all eight semesters with the exact same *type* of course at the same time.

Class scheduling will be planned for convenience and accessibility for both traditional college and non-traditional students, who might need to work, or who may only want to attend school part-time. There will be a rolling admissions policy on a traditional college semester schedule, and students can begin classes in fall or spring semesters. Summers may be used to complete working internship requirements. This schedule arrangement will provide students with maximum potential for full-time or part-time enrollment. Some courses will be offered only in spring or fall terms, and others only or in odd or even years, which will provide for an efficient use of facilities and human resources. Additionally, students will be provided with optimum course availability and wide course variety.

Each class for all three tiers (certificate, associate degree, bachelor's degree) will be listed, along with a course description and enough essential course objectives to demonstrate the intended gist of the class. Before implementation, these listings would have fully-developed syllabi and lesson plans. Unlike the way many universities operate, where faculty individually create courses and students choose courses with guidance from an advisor, this curriculum is intended to be quite regimented in a block-step format, where faculty will consistently teach agreed-upon syllabi and lesson plans. Courses, syllabi, and lesson plans would align with department and university principles, guidelines, and objectives. Content, syllabi, and lesson plans would be crafted by a committee of subject matter experts, faculty, administrators, and the head of the culinary program, with the intention that all students who take a specific class get the same learning experience, cover the same learning objectives, and learn the same content regardless of the instructor. Courses will change and evolve as needed. Students will be assessed using a variety of methods; quizzes and exams in a classroom-online hybrid course might measure content knowledge, while hands-on physical demonstrations in a kitchen lab will measure practical cookery skills. It is intended that the new culinary program be fluid and dynamic, constantly changing, and keeping abreast of the latest industry trends, discoveries, and technologies.

The curriculum in this project was designed with consideration for numerous education theories and curricular design models. The Backwards Design model was most important and the one that was primarily used. However, I do not believe that one design model needs to be used exclusively and, in this curriculum, the Backwards Design was *influenced* by others, in particular Universal Design. In fact, I think that they complement one another very well. To me, Backwards Design is the model, the way of thinking about curriculum design, that is best suited

for determining *what material needs to be taught.* In Backwards Design, we begin with the end in mind; we first answer the question, "*What* does the student need to do, know or be?" Next, we determine what assessment will show us that the student can do the thing we want, knows what we want, or is what we want. Third, we design learning experiences and environments that will most likely achieve those desired outcomes. The limitation of Backwards Design is that it fails to provide any guidance as to what those learning experiences or environments might be. Conversely, Universal Design does the opposite. It provides no real guidance regarding what to teach. Rather, it assumes that the educator or curriculum designer has the subject material in hand. It does, however, provide a framework for *how the material should be taught*. And so, in the design of the attached curriculum, the best of each was used: Backwards Design for determining the *what* (or the materials), the ultimate desired learning outcomes; and Universal Design for determining *how* those materials should best be presented so the outcomes are achieved.

Explanation of the Process Used to Design the Curriculum for Culinary Professionals

I think that a person trained in curriculum design and instruction could design a curriculum for culinary professionals much as I have by following the reasoning, logic, and process outlined as follows regardless of whether they have culinary or food expertise. This could be done by leading a group of existing culinary professionals, chefs, and culinary educators. By using such a panel and following the same procedure, I believe that the end result would be very similar.

My ideas about culinary education—what it currently is and why I think it needs to change—are based upon over 25 years of experience teaching at colleges and universities. I have taught culinary arts, catering, restaurant management, wine making, and nutrition and dietetics. I

also hold degrees in culinary arts, restaurant management, hotel management and sustainability (where I concentrated on food sustainability). My teaching experience also ranges from technical trade school to community college to major land-grant university to for-profit university to elite private research university. I have taught a lot of students a multitude of food-related subject matter in a lot of different settings. This experience showed me several things.

First, I know that a large majority of students who study culinary arts do so because they want to become chefs. As has been previously discussed, no school can graduate students who are chefs; it takes years of experience working in the field. It is unfair that students are often misled into thinking that they will be chefs (whether intentionally or not). Second, it is apparent to me that only a small percentage of culinary graduates ever become chefs. Research is needed to determine exactly how many do, but my experience and common sense show that there are simply more people graduating from culinary programs each year than there are job openings for chefs. It occurs to me that some people graduate from culinary school and discover that they do not have the grit and determination necessary to spend years doing the hard work of a professional cook (which also does not pay especially well) that are necessary to become a chef. Others may work in professional kitchens only to eventually find that they do not have the natural talent and skill needed to become a chef. Finally, some graduates never intend to be chefs to begin with.

I made the case earlier that currently available culinary arts programs are designed (or more likely, evolved) to train people to become skilled artisan cooks. They are cooking schools, and there is a notion that they are "chef" schools in the sense that one could become a cook and work their way up through the kitchen brigade to sous chefs and finally chefs. In this case they are only fully beneficial to or designed to help those few people who do that. I estimate that less

than ten percent actually do, although research is needed to determine a more accurate number—there are no hard statistics. I began to think, "How many people would go to engineering or law school if less than ten percent of graduates could become engineers or lawyers?" Admittedly, some law graduates never pass the bar exam, and some engineers end up selling insurance or something else unrelated, but not ninety percent of them, or even close to that many. Considering this problem, I came to several conclusions:

1. The group of graduates who went to culinary school thinking they would become chefs who work hard in kitchens as cooks for many years without ever having the ability to become chefs have been underserved by their education. The job of chef is far too complex an occupation to assume that trade school education is adequate. These students did not receive the education they needed in management, food studies, and liberal arts. They are simply not adaptable, versatile, or promotable enough. Many may also lack professional polish and soft skills in communication and leadership.
2. The group of graduates who went to culinary school thinking they would become chefs who discover that kitchen work and becoming a chef is not really what they want to do with their careers are also underserved because of the lack of transferability of the skills and knowledge that they have acquired. Their background is too narrow to readily adapt to other kinds of jobs.
3. The group of graduates who went to culinary school with no intention of becoming chefs are underserved because the training that they received was not designed with consideration for the many jobs other that professional cook or chef that people may go to culinary school to prepare for.

4. Even the few graduates who *do become chefs* are underserved because with a better, more thorough education, they may have been able to do so more quickly and easily. Many may also come to need that aforementioned versatility and transferability as well. The job of chef is grueling, and by middle age, many are ready to do something different. Backs and knees give out, making the work physically more and more difficult for some. Others tire of working the necessary long hours, weekends, nights, and holidays and yearn for a "normal" schedule.

I came to realize that people who needed a rigorous college education in a profession were having to settle for job training in a trade. Applying the Backwards Design model to this problem, I began to consider who and what the graduates of a rigorous post-secondary culinary program should *be*. What could the graduates *be* that would benefit *all of them* and not just the few who want to be cooks, or who might eventually become chefs by working as cooks? They would need to graduate as professionals, not tradesmen—*culinary professionals.* And, there it was; the end result of the curriculum that I would develop: the destination. The next step (working backwards) would be to determine more precisely what a professional culinarian was as this was a new concept. Therefore, I defined a professional culinarian as:

> A person with an outstanding knowledge of food and superior cooking skills, who earns their primary living in the food industry. A culinary professional is highly trained in both technical skills related to food and liberal studies; they are literate, articulate, artistic, and intellectual. They can apply their skills and education to a variety of food related jobs and occupations and are capable of becoming a positive influence on—and effective leaders in—their communities.

From there, I began to think of what sort of education a person would need to *be* a professional culinarian upon graduation.

My next step was a little unorthodox (if strictly following the Backwards Design model). Being a veteran educator, I was experienced in writing educational objectives in the manner established by Robert Mager (discussed in Chapter 2), and I began to create them for culinary professionals. I used a brainstorming, shotgun approach. I didn't worry about order, organization, or even quality. I wrote dozens, then hundreds. I quickly saw that many of these objectives were ones that could not be found in existing programs and decided that they should be. A professional culinarian would need all (or at least most) of the same skills and knowledge of a skilled professional cook. But I also tried to "think outside the box" because this new program would also be more, different, and better. To reiterate, this process could be duplicated by anyone with a good understanding of curriculum and Backwards Design by using a panel of culinary and food experts who could do the same thing and would achieve a very similar result.

I was still using Backwards Design as a mental framework for what I was trying to achieve, but my next step was also not quite orthodox. I began a process of sorting and organizing the many objectives that I had written. I wanted to see how they would begin to coalesce. I did this in a backwards way in that I just put similar objectives next to one another without sorting them into boxes or groups. I wanted to avoid working with the notion that my new curriculum would have the same sorts of classes with similar names as existing programs did; I wanted them to emerge organically. After much cutting and pasting, a pattern emerged, with five major groups being formed. First was cooking and food preparation and the required knowledge of food necessary to do it well. This represented the hands-on skills associated with traditional culinary schools; they are very similar. Next was a group that related to understandings of food that went beyond cooking and production. There were objectives that related to the appreciation of true culinary art (understanding *good* food), the culture, sociology,

psychology, philosophy, and history of food, and others. The next group were all related to business and management. They touched on topics like supervision of employees, understanding finance and accounting, making profit, food purchasing, marketing, and advertising. And finally, there were numerous objectives that were not specifically food related. These things had to do with technology, communication, writing, math, science, and leadership—things associated with a liberal college education.

I used these steps to further clarify in my own mind what I thought a professional culinarian needed to be: what they should know, understand, and be able to do. I had been thinking backwards but working ahead. Now I went back to the beginning (the end) to develop overall program objectives, in broad brush strokes—the things that graduates would need to know, understand, and be able to do that had emerged.

At this point, I deviated from exclusively using Backwards Design and began thinking in terms of the Universal Design model. I again considered who my students were likely to be in terms of demographics. I thought of the underserved groups mentioned above. It became ever clearer to me that people that study culinary arts are extremely diverse, and this coincided with my experience. I expected that the program would attract students of all ages and abilities: men and women, young and old, rich and poor, full-timers and part-timers. Especially, it would attract people with very different educational backgrounds, abilities, and learning styles: some who barely made it through high school or got a GED, others who were at the top of their class with phenomenal SAT or ACT scores, and some who already possessed college degrees. Some would be highly intelligent, highly motivated, enthusiastic students who possessed good study skills. Others might be the exact opposite. I didn't want a program that would challenge the best students and then leave the educator with the task of trying to figure out how to *accommodate*

underachieving ones. I wanted one that would be outstanding for all students—one in which all students could meet the learning objectives, graduate, and become culinary professionals. I would design it so that it would be rich and fulfilling for high achievers without overburdening those that wanted to acquire the knowledge and skills they needed to get jobs and earn a living. This is how I came up with the three-tiered approach: a one-year certificate that would lead to an associate degree, which, in turn, would lead to a bachelor's degree. I would design it so that those students from poor previous educational backgrounds and with lesser abilities would be able to earn the certificate degree. Importantly, in doing so, they would acquire the skills needed to enable them to earn the associate degree, which would prepare them adequately for the bachelor's degree. Lastly, a graduate with the bachelor's degree would have a broad enough background for continued success should they choose to attend graduate school. I would structure the system with careful consideration for Universal Design, so that it would be accessible for people with a very wide range of learning styles, abilities, and educational backgrounds. This does not mean that the design ignores the more traditional application of Universal Design, which is to make it accessible to people with disabilities; they are considered as well. After this step, I would return to using the principles of Backwards Design but would make all decisions based on the idea that the best Backwards Design would always be done with careful consideration for providing the best access for the greatest variety of students possible.

Moving backwards another step, I developed objectives for each tier level that, though still broad, would be more specific than the original program-wide ones. After these were created, I determined an assessment plan to establish the measure by which students would be able to show that they had met the learning objectives. I indicated the necessity for most of the usual forms of assessment, quizzes and tests, *practical* tests (hands-on cooking), assignments,

projects, presentations, and a capstone paper. Still, it seemed to me that while effective and needed, these were more of a way that faculty *determines* if learning objectives are met, rather than a way that students *demonstrate* that they have. That may seem like mincing words, but I wanted students to be able to self-assess and be fully conscious that they were making progress and achieving their goals. To do this, I decided that all students would be required to keep a learning objective journal or logbook for each course that they take. It would contain all the objectives listed in the course syllabus, and the student would indicate when and how they had met the objective. Then, both they and the instructor of the course would "sign off" that the objective was met. I believe that this would make students conscious of their responsibility for their own learning and provide a sense of accomplishment as they observe their own growth. Additionally, students would be assigned a faculty member to whom they would turn in course journals and with whom they would confer in order to ensure that *all* objectives were met for each course, and, in turn, for each tier of the program. By the end of the bachelor's degree, the student, each of their course instructors, and their mentor will have confirmed that they have met nearly 2,000 objectives. I believe that this learning journal or logbook can be easily developed as a learning app that can be used on a smart phone and with which students will be able to upload evidence of their learning: tests, assignments, even photos of food produced.

My next step backwards was to return to sorting the myriad smaller course objectives with the idea of grouping them into logical three-credit courses. In doing so, I also began thinking in terms of which of these belonged at each of the three program levels and of how individual courses might be arranged by semester. Universal Design thinking caused me to realize that arranging courses in a systematic and consistent manner would make them easier to access and schedule for the greatest number of students. I also realized that the courses that were

emerging as a core of liberal arts might be a barrier to many students; I felt that many would not want to take traditional English Composition, Algebra, Biology, and so forth, and might likely not perform well if they did. I concluded that these students (and the program overall) would be better served by offering *culinary specific* liberal arts classes. It is important that the same level of learning would occur and that academic rigor would be maintained, but I would offer classes with titles like Sociology and Psychology of Food, or Food Writing and Journalism. It followed that I could arrange semesters in such a way that all five of those major original groupings of objectives would be addressed. In this way, I determined to design each semester to contain two courses in professional cooking, which would be taught conjointly: one hands-on in a kitchen lab and one classroom/online hybrid. Additionally, there would be one food course, one culinary liberal arts course, and one business course. Further, I designed a schedule so that a student could take the same type of class at the same time they chose to each semester. I feel this consistent rhythm of learning may benefit some students very much. This complex schedule and an explanation of its importance in relationship to optimal utilization of costly kitchen lab space is included in chapter 4.

It was in this way that the individual classes took form. Working backwards, I determined which course objectives belonged in which type of course, and class titles emerged. It then remained to prioritize sequencing of classes so that students would move from fundamentals on to more complex learning. Students would need Culinary Mathematics, Statistics and Spreadsheets before taking Introduction to Food Industry Finance, Accounting, Purchasing and Operational Cost Control, which in turn, would prepare them to take Advanced Food Industry Finance; Managing for Profit. This, in turn, led to not only recommended scheduling and course sequencing for students but in many cases (as above) required prerequisites.

Once all the necessary individual course offerings for all three levels of the program were determined, the final backwards step was to solidify course titles, write course descriptions, and refine the learning objectives within each. During this process, courses were revised, the original learning objectives were honed and re-written, some were eliminated, and many more were added. This was the terminal end for the scope of this project. The next step would take place at the time that the curriculum might be implemented. It would first involve identifying acceptable forms of assessment for the individual course learning objectives, then the creation of syllabi, and lastly the creation of individual lesson plans and detailed learning experiences. These finals steps would require the input from the faculty who would ultimately teach the classes.

Summary

In conclusion, two things are clear: first, curricular design is both complicated and important, and it deserves careful consideration by many people and on many levels. Second, no one school, program, or educational ideology is best or right all the time. Great teaching and great education must embrace components from all of them. A professional education must be efficient and effective; it needs to be carefully planned from beginning to end. If programs in food professionalism (such as those outlined in this paper) are going to be effective, then the curriculum must be as carefully delineated as it is for other professions. This new program cannot simply be a collection of credits and classes, nor can it copy food programs of the past, because those are inadequate. The process used here is duplicable by anyone with a good understanding of curriculum design who is well versed in culinary and food studies or in conjunction with a panel of suitable culinary professionals and experts.

In many modern college programs, the only things that really exist in terms of curricular design are the names and descriptions of courses needed for graduation. The details of each

course are left to the discretion of individual instructors. Unregulated professions such as those in food service need even more scholarly endeavor in curricular design than traditional professions or traditional liberal arts programs; they need to have important elements of both, and they need to be carefully monitored and integrated. Organizations such as the American Culinary Federation, the World Association of Cooks Society, the Association of Research Chefs, and others offer guidance, but it is ultimately up to individual institutions of higher education to decide exactly what the students will be expected to learn and do.

CHAPTER 4: A NEW CURRICULUM PROPOSAL

Need for Graduates from the Program

As shown in Chapter 1, there are a great many ways to study food, and many very good degree programs that are designed to educate a myriad of food *specialists.* There are degrees available in culinary arts, food studies, food policy, nutrition and dietetics, food science, food processing, food systems and sustainability, meat analysis, restaurant management, and many others. Each of these specialties is narrow in focus. A food scientist, for example, has the knowledge and skill to analyze a sample of canned green beans for arsenic in parts per billion, a dietician can prescribe a diet for a person with kidney disease, and a professional cook can prepare 100 sauté dishes in a couple of hours. Their abilities are quite specific, and their skills have little transferability. There is a demand for food experts who are *generalists*, professional culinarians, because there are so many food-related jobs that don't fit neatly into those specialist categories. Jobs like:

> restaurant/chef publicist, food marketer, commercial food salesperson, culinary entrepreneur, food software developer, cookbook author, food forager, research chef, sommelier (wine expert), craft brewer, farmer's market manager, food lawyer, food stylist, food photographer, molecular gastronomist, mycologist, restaurant and kitchen designer, urban farmer, food truck operator, culinary librarian, food broker, cooking instructor (from the for-fun to the graduate level), airline chef, seasonal luxury travel chef, glamping chef, barista, cheese expert/monger, personal chef, caterer, event planner, culinary travel tour guide, food and restaurant critic, food radio host, food TV personality, nutritionist, recipe developer, sausage maker/charcuterist, and pit master.

And, although this list may appear to be very long, it is far from exhaustive. How about running a virtual playground for food nerds as does Craig Kanarick, DCO, taste and merchant at Mouth, Brooklyn, New York?

Unfortunately, it is difficult to statistically determine the need for individuals for the aforementioned jobs. Restaurant publicist, sausage maker, and professional food forager are jobs that are not listed by the U.S. Bureau of Labor and Statistics. They are unique, and one would be hard pressed to make the case for a college curriculum specifically designed for any of them based on predicted job demand. We certainly know that people are always going to eat, and we also know that "US adults have decreased consumption of foods from the home supply and reduced time spent cooking since 1965 . . ." (Smith, Ng, & Popkin, 2013). Trends in U.S. We can find statistical evidence that there is demand in fields more traditionally associated with the culinary arts. See the following statistics from the Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook (2013), which indicate predicted growth from 2019 through 2026:

Chefs: 10% higher than other occupations;
Cooks: 6% similar to other occupations;
Bakers: 8% slightly higher than other occupations;
Food and beverage serving and other related workers: 14% significantly higher than other occupations;
Food service managers: 9% slightly higher than other occupations.

It is reasonable to conclude that since the outlook for traditional culinary and food-related jobs is good, there will also be a continued demand for the jobs related to them.

Federal Bureau of Labor Statistics Standard Occupational Classification Codes

The following jobs/SOC codes may be helpful to facilitate further market analysis for prospective students and aid in the evaluation of program outcomes related to student employment in the fields associated with this program: 11-9050 Food Service Managers; 35-1011 Chefs and Head Cooks; and 35-9099 Food Preparation and Serving Related Workers, All Other (Bureau of Labor Statistics, 2009).

The Predicted Student Population

The predicted student population will depend upon where the curriculum is implemented. Based on the author's experience, it is likely to be very diverse. Race and gender enrollment statistics are expected to reflect the general population and to be like other specialty fields. It is expected that it will attract many students who are not academically inclined and who have lower national college entrance exam scores and lower previous grade point averages. This may reflect in more lower income students who may more frequently fall into those categories. It will also attract people with very high academic ability, including those who have already earned college degrees. The program will appeal to a mix of traditional and non-traditional college students. Non-traditional students may be career changers who perceive food-related fields to be more fun or more rewarding than their current one. More part-time students are anticipated than full-time ones, although again, this may depend on where the program is offered. Few students are expected to be residents; most will live independently and commute. Almost all students will be working, and the majority will work full-time in food-related jobs.

Relationship Between the Program and the Institution in Which It Will Reside

This program is intended to be more academically rigorous than those that it is intended to replace or compete with. It is designed with the philosophy that graduates are a product and

that the quality of the product will reflect the excellence of the program and the institution. Graduates with superior abilities will be in high demand in their chosen fields, and in turn, the reputation of the program will grow, positively influencing the overall reputation of the school itself.

Possibility of Institutional Overlap

Depending on where the proposed new program is implemented, there may be potential for institutional overlap, duplication, internal competition, and redundancy. This could include conflict with any of the degree programs previously mentioned, which educate food specialists, such as food science, restaurant management, or nutrition and dietetics. It would certainly compete internally if implemented at any school that currently houses a traditional culinary program or apprenticeship if not instituted to replace the existing program. An apprenticeship program may see some migration but may also appeal to a very different potential student, specifically one who just wants to get in a kitchen and cook and who has very little interest in liberal education.

Opportunities for International Learning Experiences

This program was not designed to include travel or international semester abroad opportunities. It is recommended that operational administrators and faculty consider the possibility of arranging travel for credit classes during the summer when the program has no scheduled classes. Rather than making them “extra” classes, course substitutions could be considered, and it could replace working internship components if properly designed. Rotating the destinations every three to five years would give all students a chance to visit/study where their interest lies. Southern Europe, northern Europe, Asia and South America are examples.

Admission Requirements

Open enrollment. The only admissions requirement beyond a high school diploma or equivalency is for the student to have the physical ability to perform the manual labor tasks that are required in kitchen work. Specific policies regarding the assessment of a student's physical labor would be put forth in accordance with the university's Americans with Disabilities Act (ADA) compliance officer, university policies, and any local or state legal requirements.

Important and Unique Considerations for Scheduling and Facilities

As previously mentioned, consistent scheduling is important so that students get the feel for the rhythm of the program. Each semester, a classroom-online hybrid cooking class is taught in conjunction with a hands-on kitchen lab, a food arts class, a food management class, and a liberal arts class. The hands-on kitchen lab courses are very time consuming, compared to the traditional classroom experiences. Whereas the traditional courses and the online courses in the program are intended to be collegial and time-efficient for both faculty and students, the kitchen labs will contribute to faculty and student interaction and to students developing a sense of belonging, all of which will contribute positively to retention rates (Pascarella and Terenzini, 2005).

Kitchen lab facilities are significantly costlier than an average classroom. Initial building costs are typically several million dollars, and the ongoing regular upkeep of the facility of and maintenance of kitchen equipment is costly as well. There are also expenses for cleaning, supplies, pest control, waste disposal, the modernization of outdated equipment, the replacement of broken equipment, and the replacement of lost and worn out small wares. This entire curriculum has been carefully designed to use only one of these important facilities. The kitchen lab must be carefully designed, constructed, and maintained to accommodate 24 students per

class and to provide adequately for the diversity of all eight culinary labs offered in the program. The total enrollment capacity would be 96 students, assuming zero attrition, and assuming all students seek to complete bachelor's degrees. Though this proposed curriculum program requires only one kitchen lab, the addition of a second kitchen lab would allow for doubling the existing capacity of courses and the addition of up to 48 students in an evening program by admitting students during alternating years. An example of a proposed schedule for one kitchen lab is as follows:

Table 1: Proposed Schedule for Kitchen Lab

Fall Semester	**8:00 a.m.-12:00 p.m.**	**12:10 p.m. to 4:10 p.m.**
Mondays/Wednesdays	Fundamentals of Cooking	Cooking Skills Development
Tuesdays/Thursdays	Advanced Bread, Dessert, and Pastry Production	Traditional Cuisine of Europe and Western Cultures
Spring Semester	**8:00 a.m.-12:00 p.m.**	**12:10 p.m. to 4:10 p.m.**
Mondays/Wednesdays	Human Nutrition and Healthy Cooking	Exploration of Asian and World Cuisines
Tuesdays/Thursdays	Fundamentals of Baking and Desserts	Butchering, Charcuterie, and Garde Manger

These courses will be scheduled in such a way as to allow students to complete their program efficiently, conveniently, and fluidly. Semesters with kitchen lab scheduled in the morning and a

corresponding classroom, online, or hybrid class in the afternoon would alternate the next semester, with a morning classroom, online, or hybrid class and corresponding kitchen lab scheduled in the afternoon. Another benefit of balancing non-kitchen lab culinary courses, elective courses, and kitchen lab courses would be the allowance for articulation agreements to be arranged between high school culinary programs and college culinary programs. Electives could be taken at any time, and non-kitchen lab courses could be taken in a traditional classroom, online, or hybrid modality. Students would work with advisors to develop a schedule that best suits their lifestyle, work schedules, and graduation plan needs. Below is an example of a proposed course schedule for the new culinary program:

Semester 1 or 2—Fall offering:

3 credits ***Fundamentals of Cooking*** (Classroom/Online Hybrid)

Co-requisite: *Fundamentals of Cooking* (Kitchen Lab)

Monday from 1:40 p.m.-2:10 p.m.

3 credits ***Fundamentals of Cooking*** (Kitchen Lab)

Co-requisite: *Fundamentals of Cooking* (Classroom/Online Hybrid)

Monday and Wednesday from 8:00 a.m.-12:00 noon

3 credits ***Food and Beverage Appreciation; The Physiology and Psychology of Taste*** (Classroom/Online Hybrid with Dining Room and Kitchen Lab Access)

Wednesday from 12:10 p.m.-1:30 p.m.

3 credits ***Kitchen Facilities Management, Equipment and Food Safety and Sanitation*** (Classroom/Online Hybrid with visiting access to kitchen lab.)

Monday from 12:10 p.m.-1:30 p.m.

3 credits ***Life Skills for Professional and Scholastic Success and Personal Wellbeing*** (Classroom/Online Hybrid)

Wednesday from 1:40 p.m.-2:10 p.m.

15 credits semester total

Semester 1 or 2—Spring offering:

3 credits ***Fundamentals of Baking and Desserts*** (Classroom/Online Hybrid)

Co-requisite: *Fundamentals of Baking and Desserts* (Kitchen Lab)

Tuesday from 1:40 p.m.-2:10 p.m.

3 credits ***Fundamentals of Baking and Desserts*** (Kitchen Lab)

Co-requisite: *Fundamentals of Baking and Desserts* (Classroom/OnlineHybrid)

Tuesday and Thursday from 8:00 a.m.-12:00 noon

3 credits ***Culinary Mathematics, Statistics and Spreadsheets*** (Classroom/Online Hybrid) **Prerequisite:** Students must pass an entrance exam or equivalency, or complete a college-level math course, or have an SAT score of 500 or higher, or have a 20 or higher ACT score in Math. The school will offer classes to prepare students who need help to meet the prerequisite; these can be used as electives.

Tuesday from 12:10 p.m.-1:30 p.m.

3 credits ***Philosophical and Religious Influence on Food and Culture*** (Classroom/ Online Hybrid)

Thursday from 12:10 p.m.-1:30 p.m.

3 credits ***Managing Prepared Food Delivery Systems, Dining Service, Catering and Event Planning*** (Classroom/Online Hybrid with Dining Room access)

Thursday from 1:40 p.m.-2:10 p.m.

15 credits semester total

Certificate program:

30 credits first year total, plus:

3 credits ***Supervised Food Work Experience Internship I*** (200 contact hours)

Certificate program total: 33 credits

Certificate in Foodservice Cooking:

(33 credits; includes 6 credits of approved and supervised work-study or service learning)

Prerequisites: High school diploma, pass physical examination to work in foodservice, the ability to lift 50 pounds etc.

Description: Prepares students for entry-level positions as foodservice cooks. Jobs available may include line cook, prep cook, deli cook, and others; pay is generally somewhat higher than minimum wage. Emphasis is on the establishment of basic cooking skills including knife usage; cooking techniques such as braising or sautéing; safety and sanitation. Students demonstrate progress through regular written and practical examinations and through completion of a competency checklist, along with their faculty and advisor.

Semester 3 or 4—Fall offering:

3 credits ***Cooking Skills Development*** (Classroom/Online Hybrid)

Co-requisite: *Cooking Skills Development* (Kitchen Lab)

Prerequisite: *Fundamentals of Cooking* (Classroom/Online Hybrid)

Monday from 9:10 a.m.-10:30 a.m.

3 credits ***Cooking Skills Development*** (Kitchen Lab)

Co-requisite: *Cooking Skills Development* (Classroom/Online Hybrid)

Prerequisite: *Fundamentals of Cooking* (Kitchen Lab)

Monday and Wednesday from 12:10 p.m.-4:10 p.m.

3 credits ***Introduction to Food Science and Research*** (Classroom/Online Hybrid)

Monday from 10:40 a.m.-12:00 noon

3 credits ***Food Writing and Journalism*** (Classroom/Online Hybrid)

Prerequisite: Students must pass an entrance exam or an SAT score of 500 or higher in Evidence-Based Reading and Writing or equivalent, or have a college-level English course, or have a 20 or higher ACT score in English. The school will offer classes to prepare students who need help to meet the prerequisite.

Wednesday from 10:40 a.m.-12:00 noon

3 credits ***Human Resources and Supervision*** (Classroom/Online Hybrid)

Wednesday from 9:10 a.m.-10:30 a.m.

15 credits semester total

Semester 3 or 4—Spring offering:

3 credits ***Butchering, Charcuterie and Garde Manger*** (Classroom/Online Hybrid)

Co-requisite: *Butchering, Charcuterie and Garde Manger* (Kitchen Lab)

Prerequisite: *Cooking Skills Development* (Classroom/Online Hybrid)

Tuesday from 9:10 a.m.-10:30 a.m.

3 credits ***Butchering, Charcuterie and Garde Manger*** (Kitchen Lab)

Co-requisite: *Butchering, and Garde Manger* (Classroom/Online Hybrid)

Prerequisite: *Cooking Skills Development* (Kitchen Lab)

Tuesday and Thursday from 12:10 p.m.-4:10 p.m.

3 credits ***Food Styling and Photography*** (Classroom/Online Hybrid with access to Kitchen Lab and Dining Room)

Tuesday from 10:40 a.m.-12:00 noon

3 credits ***Introduction to Food Industry Finance, Accounting, Purchasing and Operational Cost Control*** (Classroom/Online Hybrid)

Prerequisite: *Culinary Mathematics, Statistics and Spreadsheets* (Classroom/Online Hybrid)

Thursday from 10:40 a.m.-12:00 noon

3 credits ***Business Development, Marketing, Sales and Public Relations*** (Classroom/Online Hybrid)

Tuesday from 9:10 a.m.-10:30 a.m.

15 credits semester total

Associate degree program:

60 credits first and second year total, plus:

6 credits ***Supervised Food Work Experience Internship I and II*** (400 contact hours combined)

Associate degree program total: 66 credits

Associate of Applied Science Degree in Professional Culinary Art and Management

(66 credits; includes 30 credits from Certificate in Foodservice Cooking, plus an additional 6 credits of approved and supervised work-study or service learning)

Description: This degree builds on the certificate program and is designed to prepare students for entry-level jobs in foodservice supervision and management, although some students may need to gain professional cooking experience before attaining those jobs. With emphasis on building managerial capacity, students may find work as kitchen managers for larger restaurant operations, such as chain restaurants and hotels, as well as in smaller restaurants. Others may pursue entry level jobs in fine dining establishments, such as station cooks, prep cooks, or line cooks, under the tutelage of a highly regarded executive chef. Pay may vary considerably based on experience but would be significantly higher than minimum wage. Some students, through hard work and diligence, may be promoted to positions, such as executive chef or foodservice director. Topics include: personnel supervision, food purchasing, operational profit and cost control, equipment maintenance, customer service, bar and beverage operations, human nutrition, the art of garde manger, butchering and charcuterie, baking and pastry arts, nutritional cuisine and the study of sustainable, and local and seasonal cookery.

Semester 5 or 6—Fall offering:

3 credits ***Advanced Bread, Dessert and Pastry Production*** (Classroom/Online Hybrid) **Co-requisite:** *Advanced Bread, Dessert and Pastry Production* (Kitchen Lab) **Prerequisite:** *Fundamentals of Baking and Desserts* (Classroom/Online Hybrid)

Monday from 1:40 p.m.-2:10 p.m.

3 credits ***Advanced Bread, Dessert and Pastry Production*** (Kitchen Lab)

Co-requisite: *Advanced Bread, Dessert and Pastry Production* (Classroom/Online Hybrid)

Prerequisite: *Fundamentals of Baking and Desserts* (Kitchen Lab)

Tuesday and Thursday from 8:00 a.m.-12:00 noon

3 credits ***Readings in Food Literature*** (Classroom/Online Hybrid)

Prerequisite: *Food Writing and Journalism* (Classroom/Online Hybrid)

Monday from 12:10 p.m.-1:30 p.m.

3 credits ***Food Supply-chain Management*** (Classroom/Online Hybrid with Kitchen Lab access)

Prerequisite: *Introduction to Food Industry Finance, Accounting, Purchasing and Operational Cost Control* (Classroom/Online Hybrid)

Wednesday from 12:10 p.m.-1:30 p.m.

3 credits **Elective**

15 credits semester total

Semester 5 or 6—Spring offering:

3 credits ***Human Nutrition and Healthy Cooking*** (Classroom/Online Hybrid)

Co-requisite: *Human Nutrition and Healthy Cooking* (Kitchen Lab)

Prerequisite: *Butchering, Charcuterie and Garde Manger*

(Classroom/Online/ Hybrid)

Tuesday from 1:40 p.m.-2:10 p.m.

3 credits ***Human Nutrition and Healthy Cooking*** (Kitchen Lab)

Prerequisite: *Butchering, Charcuterie and Garde Manger* (Kitchen Lab)

Co-requisite: *Human Nutrition and Healthy Cooking* (Kitchen Lab)

Monday and Wednesday from 8:00 a.m.-12:00 noon;

Thursday from 12:10 p.m.-1:30 p.m.

3 credits ***Introduction to Gastronomy and Food Studies***

(Classroom/Online/Hybrid)

Tuesday from 12:10 p.m.-1:30 p.m.

3 credits ***Sustainable Food Systems and Food Policy*** (Classroom/Online/Hybrid)

Thursday from 1:40 p.m.-2:10 p.m.

3 credits Elective

15 credits semester total

Semester 7 or 8—Fall offering

3 credits ***Traditional Cuisine of Europe and Western Cultures*** (Kitchen Lab)

Prerequisite: *Human Nutrition and Healthy Cooking* (Kitchen Lab)

Tuesday and Thursday from 12:10 p.m.-4:10 p.m.

3 credits ***Sociology and Psychology of Food*** (Classroom/Online/Hybrid)

Tuesday from 10:40 a.m.-12:00 noon

3 credits ***Advanced Food Industry Finance; Managing for Profit***

(Classroom/Online/ Hybrid, with access to Kitchen Lab and Dining Room)

Prerequisite: *Introduction to Food Industry Finance, Accounting, Purchasing and Operational Cost Control* (Classroom/Online/Hybrid)

Thursday 10:40 a.m.-12:00 noon

3 credits **Elective**

12 credits semester total

Semester 7 or 8—Spring offering

3 credits ***Exploration of Asian and World Cuisines*** (Kitchen Lab)

Prerequisite: *Human Nutrition and Healthy Cooking* (Kitchen Lab)

Monday and Wednesday from 12:10pm- 4:10pm

3 credits ***Bar and Beverage Management and Hospitality Law*** (Classroom/ Online/Hybrid)

Monday 10:40 a.m.-12:00 noon

3 credits ***Food Entrepreneurship, Business Planning and Menu Design***

(Classroom/Online Hybrid)

Wednesday 10:40 a.m.-12:00 noon

3 credits Elective

12 credits semester total

Bachelor's Degree program: 120 credits total

(120 credits; includes 60 credits from Associate of Applied Science Degree in Professional Cooking and Food Management)

Description: Students are prepared for futures as chefs and restaurateurs and will mostly find employment in more expensive fine dining restaurants. Others may find work in food photography, food writing, or as celebrity chefs, higher education faculty, or media personalities. Students will possess a liberal and versatile education and may choose to go on to specialize or pursue higher degrees in fields like food science, food in history, sustainable food production, menu design and planning, or human eating behaviors.

Mentoring and a Unique Learning Portfolio App

All the courses will interact with a uniquely designed learning portfolio online application. It will be a virtual space where students are able to track and document their learning progress throughout their tenure in the program. All students will be assigned a faculty mentor upon enrollment in the program. The app will contain the key learning objectives from each course, along with other materials. The student *and* the mentor *and* the instructor for a given course will all attest online that the objectives have been met. Frequently, the student will upload evidence of their completion. For example, a picture of an omelet produced in lab might be uploaded as evidence for "The student will properly prepare a French Omelet according to industry standards." This is not only a major form of assessment that students meet learning objectives, but it is also intended to keep them engaged in their coursework, with their instructor, and in their program and progress (via the mentor). It is intended to help with student retention and completion rates because a mentor will know if the student is performing poorly in any area.

The author's experience shows that culinary students frequently excel in some classes (hands-on and cooking, for instance) while performing poorly in others (math and English). Many may appear to their mentor, advisor, and culinary teachers to be progressing just fine, while on the "other" part of campus, they are failing in required general education. The mentor and student will be required to meet twice per semester to review progress.

Often, the concepts of high academic rigor and open enrollment do not go well together, but in this graduated and tiered culinary education program, students would be expected to have *college level* skills in reading, writing, and mathematics, as well as competency in the use of technology. Every effort will be made to assist students who need remedial or college preparatory classes, tutoring, and other support. According to the Pell Institute for the Study of Opportunity in Higher Education,

> Tutoring and supplemental academic courses helped close gaps in students' academic preparation by covering and/or reinforcing material from the high school curriculum as well as by developing study skills. Academic enrichment courses and programs provided students with advanced subject content and skills, allowing them to not only to catch up but leap forward. . . . Summer bridge programs helped students gain experience with registering for classes, finding classrooms on campus, and going to the bookstore. Students also developed study habits and skills for succeeding in college courses with additional tutoring and other support provided during such programs. [Additionally,] [c]ontinuing support through the first year of college… [can] help [students] weather the crisis [with academic success]. (Engle, Bermeo & O' Brien, 2006, pp. 6-7)

It is critically important that an environment of encouragement and acceptance is visible and apparent in the program. No student should be made to feel inferior in any way for needing a preparatory course; they should be made to feel welcome and proud to be learning something important and bettering themselves. To be successful in this program, the student will need to have a thorough understanding and mastery of basic English, arithmetic, and mathematics, so that they can excel in higher-level courses as they move forward through the program.

Administrative Structure and Staffing Needs

The administrative structure of the program will depend to a degree upon the administrative structure of the institute in which it is housed. Generally, there will be an overall Director who reports to a Dean. As the program grows, there may be department Chairs at the differing program levels, one for certificate, associate and bachelor's degrees. There will need to be at least one administrative assistant, a full- or part-time culinary lab technician, and a full- or part-time purchasing agent. Again, it will depend on the size of the program and number of students enrolled. During the growth period, the lab tech and purchasing agent jobs may be combined. Both positions are quite important. The lab tech must keep the lab clean and sanitary, make sure that all health codes are adhered to, and ensure that all equipment is properly maintained and functional. Supplying the materials needed to teach culinary labs of such great diversity is a daunting task. Unlike most food operations, in which a specific inventory is maintained, each lab course on each day of the semester will have different needs. The purchasing agent must be capable of designing and administering a complex system of internal requisitions (what is needed for each individual class), ordering and procurement through vendors and other sources, receiving of product, and final distribution to classes for use.

Educational Delivery Method

As previously mentioned, consistent scheduling is important so that students get the feel for the rhythm of the program. A full-time student could, if they chose, take classes each of the eight semesters for a bachelor's degree, with the exact same schedule each semester. Further, they could have the exact same schedule with the same *type* of class at the same time/day. There will be hands-on kitchen lab classes, classroom, and online hybrid classes. The hands-on kitchen lab courses are very time consuming, compared to the traditional classroom experiences, so the

hybrid courses are intended to be collegial and time-efficient for both faculty and students. This should provide for plenty of opportunities for students to interact with faculty and fellow students in person, helping them develop a sense of belonging. This should contribute positively to retention rates (Pascarella and Terenzini, 2005). Paid or unpaid working internships occur in summers following the certificate program and following the associate degree program. These are intended to provide real world working experiences for students and to possibly lead to future employment. It is believed that most students will be working in the field while attending school, in which case the student may use their current job for internship.

Each semester will have the following:

- A primary, hands-on cooking lab that meets two days per week for four hours each day. The hands-on component is critical to this kind of program; students must experience food and practice cooking skills. Eight contact hours per week is demanding on students, but four hours is needed for the lessons necessary: half an hour to set up, half an hour to clean up, and three hours for food preparation/cooking and analysis/critique.
- A primary hybrid online and classroom course that is a corequisite and taught in direct conjunction with the primary cooking lab. This class will meet once per week for one-and-a-half hours. This class is designed to prepare students for the hands-on lab, and the corequisite component is important. It will provide the theoretical and informational knowledge students need for labs to have meaning. As an example, a primary lab class may have a week (two labs) devoted to understanding fish and shellfish cookery. In this conjoined course, students will experience face-to-face, on-campus learning experiences with the usual lecture/discussion, assigned readings, quizzes etc. along with online activities that also correspond. This delivery method is thought to be effective and

respectful of the time of busy students. Note: There are no corresponding hybrid courses for cooking labs during the senior year.

- A course in culinary arts, food studies, or gastronomy. This will be a classroom and online hybrid. Students will experience face-to-face, on-campus learning experiences with the usual lecture/discussion, assigned readings, quizzes etc., along with online activities that also correspond. This delivery method is thought to be effective and respectful of the time of busy students.
- A course in food management. This will be a classroom and online hybrid.
- A course in liberal arts/general studies/core requirement. This will be a classroom and online hybrid. During junior and senior years, students will take electives rather than required core courses.

Table 2: Curriculum: Course Requirements and Sequencing

Year	Fall	Spring	Summer	Total Annual Credits Earned
1	Fundamentals of Cooking (3) Fundamentals of Cooking Lab (3) Food and Beverage Appreciation (3) Kitchen Facilities Management (3) Life Skills (3)	Fundamentals of Baking (3) Fundamentals of Baking Lab (3) Culinary Mathematics (3) Philosophy and Religion of Food (3) Managing Service (3)	Internship I (3)	33
2	Cooking Skills Development (3) Cooking Skills Development Lab (3) Intro to Food Science (3) Food Writing (3) Human Resources and Supervision (3)	Butchering and Garde Manger (3) Butchering and Garde Manger Lab (3) Food Styling and Photography (3) Intro to Food Industry Finance (3) Business Marketing and Sales (3)	Internship II (3)	33
3	Advanced Bread and Dessert (3) Advanced Bread and Dessert Lab (3) Food Literature (3) Food Supply Chain Management (3) Elective (3)	Nutrition and Healthy Cooking (3) Nutrition and Healthy Cooking Lab (3) Intro to Gastronomy (3) Sustainable Food Systems (3) Elective (3)		30
4	Cuisine of Europe Lab (3) Sociology and Psychology of Food (3) Advanced Food Finance (3) Elective (3)	Exploration of Asian and World Cuisine (3) Beverage Management and Hospitality Law (3) Food Entrepreneurship (3) Elective (3)		24

Total credits required for certificate program: 33 (no electives)

Total credits required for associate degree: 66 (no electives)

Total credits required for bachelor's degree: 120

Total core credits required: 108

Total electives required: 12

Non-Course Requirement

All students in all three programs must complete a learning portfolio in conjunction with their mentor. This will be compiled using a specially designed online application. Using the app, students will document their achievement of all course learning objectives. The portfolio app will be a component of all classes taken and required for each. For graduation the portfolio must be complete and approved by the faculty mentor.

Course Order and Timing

The Backwards Design model of curricular development is used to determine the order of courses. All classes are in sequence, beginning with basic and foundational skills and knowledge and progressing through more and more complex ones. For this reason, many courses have prerequisites. Additionally, as previously mentioned, most of the primary culinary lab courses have corequisites specifically designed to compliment and augment each other. Lastly, courses (and semesters) are designed with the most practical knowledge and skills at the fore. They are sequenced so that students are employable in the field as soon as possible with important, fundamental working skills. As the student progresses through the program, courses become more liberally oriented, more cerebral, and perhaps more esoteric. Advanced coursework is also aligned with higher-level employment, providing students with education that corresponds with promotions, allowing them to progress to higher levels of management and leadership.

Comparison with Existing Programs

This program is designed to be different than other programs that are available to study the culinary arts. The evolution and nature of what might be considered comparable is discussed in detail in Chapter 2. Essentially it amounts to the fact that other culinary programs are oriented toward technical skills and the learning of a trade (cooking) and are gradually evolved through a tradition-based, outdated apprenticeship program. Additionally, few other programs offer a culinary degree at the bachelor's level. Those that do appear to be based on a two-plus-two model, in which students earn an associate degree; then enough credits in general education are added to make up the bachelor's component. Students who graduate from this program will receive all the training that students in traditional two-year culinary schools do, plus all of the training available in two-plus-two programs, advanced liberal studies and culinary courses designed especially for professional culinarians; there are no generic classes. They will receive the necessary liberal, managerial, and artistic training necessary to be life-long learners.

Relevant U.S. Department of Education-National Center for Education Statistics Classification of Instructional Programs (CIP) Codes and Descriptions

This program of study does not fit neatly into any CIP code, rather it combines components of the following four (at least):

Cooking and Related Culinary Arts, General. CIP Code: 12.0500

> A program that focuses on the general study of the cooking and related **culinary art**s, and that may prepare individuals for a variety of jobs within the food service industry. It includes instruction in food preparation, cooking techniques, equipment operation and maintenance, sanitation and safety, communication skills, applicable regulations, and principles of food service management.

Culinary Arts/Chef Training. CIP Code: 12.0503

A program that prepares individuals to provide professional chef and related cooking services in restaurants and other commercial food establishments. It includes instruction in recipe and menu planning, the preparationing and cooking of foods, supervising and training kitchen assistants, the management of food supplies and kitchen resources, aesthetics of food presentation, and familiarity or mastery of a wide variety of cuisines and culinary techniques.

Culinary Science/Culinology. CIP Code: 12.0509

A program that focuses on the blending of food science and the culinary arts and that prepares individuals to work as research chefs and related research and development positions in the food industry. It includes instruction in culinary arts, food chemistry, food safety and quality, food processing, nutrition, and business management.

Restaurant, Culinary, and Catering Management/Manager. CIP Code: 12.0504

A program that prepares individuals to plan, supervise, and manage food and beverage preparation and service operations, restaurant facilities, and catering services. It includes instruction in food/beverage industry operations, cost control, purchasing and storage, business administration, logistics, personnel management, **culinary art**s, restaurant and menu planning, executive chef functions, event planning and management, health and safety, insurance, and applicable law and regulations.

Restaurant/Food Services Management. CIP Code: 52.0905

A program that prepares individuals to plan, manage, and market restaurants, food services in hospitality establishments, food service chains and franchise networks, and restaurant supply operations. Includes instruction in hospitality administration, food services management, wholesale logistics and distribution, franchise operations, business networking, personnel management, culinary arts, business planning and capitalization, food industry operations, marketing and retailing, business law and regulations, finance, and professional standards and ethics.

Table 3: Program-wide Student Learning Outcomes and Assessment Plan:

Program Learning Outcomes	Assessment Mapping	Assessment methods	Use of assessment data
1. Students will have a firm understanding of the financial aspects of the hospitality and food industry and be able to effectively make profit in business. They will be familiar with, and confident in, the use of typical percentage based managerial accounting common in the food and hospitality industry. They will have the ability to interpret, understand and produce common accounting documents, such as the income statement, balance sheet, statement of cash flows, and statement of retained earnings.	1. Culinary mathematics, statistics, and spreadsheets. 2. Managing prepared food delivery systems, dining room service, catering and event planning. 3. Introduction to food industry finance, accounting, purchasing and operational cost control. 4. Business development, marketing, sales, and public relations. 5. Advanced food industry finance; managing for profit. 6. Food entrepreneurship, business planning, and menu design. 7. Operational cost control.	1. Standardized comprehensive mid-term and final written examinations in *all* courses. 2. Student online learning outcome portfolio completion. 3. Financial accounting workbooks and projects. 4. Entrepreneurship capstone business plan.	1. Student online learning outcomes portfolio will be retained as part of departmental permanent records. 2. Assessment results will be analyzed annually by the program director and average scores on the standardized comprehensive exams will be calculated. 3. The analysis report will be presented to the faculty during beginning of the school year faculty and curriculum development days. 4. The faculty will recommend program changes to the program director, who will monitor and support their implementation.

Table 3. Continued.

Program Learning Outcomes	Assessment Mapping	Assessment methods	Use of assessment data
2. Graduates will possess essential culinary and managerial skills that enable them to design and manage a professional, commercial kitchen producing high quality, good food in relatively high volume for operations, including restaurants, catering, hospitals, schools, and others. Additionally, they must possess the necessary cooking skills for employment as cooks in high-end professional kitchens and the capacity to become successful and certified chefs if they *choose*.	1. Fundamentals of cooking. 2. Kitchen facilities management, equipment and food safety, and sanitation. 3. Fundamentals of baking and desserts. 4. Cooking skills development. 5. Butchering, charcuterie and garde manger. 6. Advanced bread, dessert, and pastry production. 7. Traditional cuisine of Europe and western cultures. 8. Exploration of Asian and world cuisines.	1. Standardized comprehensive mid-term and final written examinations in *all* courses. 2. Standardized comprehensive mid-term and final practical cooking/food production examinations in *all* courses. 3. Student online learning outcome portfolio completion.	1. Student online learning outcomes portfolio will be retained as part of departmental permanent records. 2. Assessment results will be analyzed annually by the program director and average scores on the standardized comprehensive exams will be calculated. 3. The analysis report will be presented to the faculty during beginning of the school year faculty and curriculum development days. 4. The faculty will recommend program changes to the program director who will monitor and support their implementation.

Table 3. Continued.

Program Learning Outcomes	Assessment Mapping	Assessment methods	Use of assessment data
3. Students will display an understanding of ingenuity, art, creativity, and diverse forms of intellectual and aesthetic expression as related to food. They will know what "good" food is. They will produce, evaluate, and critique food in various art forms from simple fare to the most complex and unique.	1. Fundamentals of cooking. 2. Food and beverage appreciation; the physiology and psychology of taste. 3. Fundamentals of baking and desserts. 4. Philosophical and religious influence on food and culture. 5. Cooking skills development. 6. Butchering, charcuterie and garde manger. 7. Food styling and photography. 8. Advanced bread, dessert and pastry production. 9. Introduction to gastronomy and food studies. 10. Traditional cuisine of Europe and western cultures. 11. Sociology and psychology of food. 12. Exploration of Asian and world cuisines.	1. Standardized comprehensive mid-term and final written examinations in *all* courses. 2. Standardized comprehensive mid-term and final practical cooking/food production examinations in *all kitchen lab* courses. 3. Student online learning outcome portfolio completion. 4. Assignments, presentations, and projects. 5. Introduction to gastronomy and food literature review and term paper.	1. Student online learning outcomes portfolio will be retained as part of departmental permanent records. 2. Assessment results will be analyzed annually by the program director and average scores on the standardized comprehensive exams will be calculated. 3. The analysis report will be presented to the faculty at the beginning of the school year during faculty and curriculum development days. 4. The faculty will recommend program changes to the program director, who will monitor and support their implementation.

Table 3. Continued.

Program Learning Outcomes	Assessment Mapping	Assessment methods	Use of assessment data
4. Students will possess a wide knowledge base in the arts, humanities, mathematics, sciences, and social sciences. They will have the skills to think critically, communicate and lead effectively, solve problems, and review solutions.	1. Life skills for scholastic success and personal wellbeing. 2. Culinary mathematics, statistics, and spreadsheets. 3. Philosophical and religious influence on food and culture. 4. Introduction to food science and research. 5. Food writing and journalism. 6. Readings in food literature. 7. Introduction to gastronomy and food studies. 8. Sociology and psychology of food. 9. Electives. 10. Supervised internship.	1. Standardized comprehensive mid-term and final written examinations in *all* courses. 2. Student online learning outcome portfolio completion. 3. Assignments, presentations and projects. 4. Introduction to gastronomy and food literature review and term paper. 5. Evaluation of job performance during internship by faculty and job supervisor.	1. Student online learning outcomes portfolio will be retained as part of departmental permanent records. 2. Assessment results will be analyzed annually by the program director and average scores on the standardized comprehensive exams will be calculated. 3. The analysis report will be presented to the faculty during beginning of the school year faculty and curriculum development days. 4. The faculty will recommend program changes to the program director who will monitor and support their implementation.

Table 3. Continued.

Program Learning Outcomes	Assessment Mapping	Assessment methods	Use of assessment data
5. Students will have the necessary knowledge and skills in business to be effective leaders and managers in hospitality and culinary fields. These abilities will be versatile enough to allow the student to be successful in other fields as well.	1. Culinary mathematics, statistics, and spreadsheets. 2. Human resources and supervision. 3. Introduction to food industry finance, accounting, purchasing, and operational cost control. 4. Business development, marketing, sales, and public relations. 5. Food supply-chain management. 6. Advanced food industry finance; managing for profit. 7. Bar and beverage management and hospitality law. 8. Food entrepreneurship, business planning, and menu design.	1. Standardized comprehensive mid-term and final written examinations in *all* courses. 2. Student online learning outcome portfolio completion. 3. Financial accounting workbooks and projects. 4. Entrepreneurship capstone business plan.	1. Student online learning outcomes portfolio will be retained as part of departmental permanent records. 2. Assessment results will be analyzed annually by the program director, and average scores on the standardized comprehensive exams will be calculated. 3. The analysis report will be presented to the faculty during beginning of the school year faculty and curriculum development days. 4. The faculty will recommend program changes to the program director who will monitor and support their implementation.

Table 3. Continued.

Program Learning Outcomes	Assessment Mapping	Assessment methods	Use of assessment data
6. Students will contribute value to their planet, employers, communities, and country as ethical and conscientious professionals. They will have a positive influence on society as they enlighten and teach people about the qualities that identify food as "good" and through their understanding and communicating of important nutritional information. They will exhibit understanding of sustainability and evidence behaviors that demonstrate willingness to preserve the planet and the environment for future generations. They will respect human and cultural diversity in the community, the workforce, and the people they serve.	1. Life skills for scholastic success and personal wellbeing. 2. Philosophical and religious influence on food and culture. 3. Human nutrition and healthy cooking. 4. Sustainable food systems and food policy.	1. Standardized comprehensive mid-term and final written examinations in *all* courses. 2. Standardized comprehensive mid-term and final practical cooking/food production examinations in *all kitchen lab* courses. 3. Student online learning outcome portfolio completion. 4. Assignments, presentations, and projects.	1. Student online learning outcomes portfolio will be retained as part of departmental permanent records. 2. Assessment results will be analyzed annually by the program director, and average scores on the standardized comprehensive exams will be calculated. 3. The analysis report will be presented to the faculty at the beginning of the school year during faculty and curriculum development days. 4. The faculty will recommend program changes to the program director, who will monitor and support their implementation.

Additional, Indirect Program Wide Assessment Measures

1. End-of-course student surveys will solicit feedback on course effectiveness and self-evaluations of their development in the context of each outcome.

2. Alumni surveys will be administered periodically to solicit graduates' self-evaluations of their continued development as culinary professionals, their satisfaction with their education, and success in their chosen careers.

Curriculum Mapping and How Courses Contribute to Students' Achievement of the Program-Wide Learning Outcomes

The following table will define three levels of intellectual rigor and complexity that will be used to indicate the course(s) in which each program wide outcome is intentionally addressed:

Table 4: Levels of Intellect and Rigor

Level I	Level II	Level III
▪ *Knowledge & Comprehension:* Recall data or information; understand the meaning, translation, interpolations, and interpretation of instructions and problems; state a problem in one's own words.	▪ *Application:* Use a concept in new situations; unprompted use of an abstraction. Application of knowledge in novel situations. ▪ *Analysis:* Separate material or concepts into component parts so organizational structure may be understood. Distinguish facts from inferences.	▪ *Synthesis:* Build a structure or pattern from diverse elements. Put parts together to form a whole, with emphasis on creating a new meaning or structure. ▪ *Evaluation:* Make judgments about the value of ideas or materials.

Advanced Food Finance (3)	1,2,3				1,2,3	
Elective (3)				1,2,3		
Exploration of Asian and World Cuisine (3)		1,2,3	1,2,3			1,2
Beverage Management and Hospitality Law (3)	1,2,3				1,2,	
Food Entrepreneurship (3)	1,2,3				1,2,3	
Elective (3)				1,2,3		

Additional Program Goals and their Assessment

The only goals of the program other than the learning outcomes are ones that generally apply to any post-secondary education. Naturally, one would want it to be successful from the standpoint of being in demand and enrolling students, at least to the extent of filling the classes available with the one lab scheduling plan. Growth beyond that would be acceptable and welcome. There are no real inherent barriers to growth. Additional growth would require additional resources (especially additional lab space), which is expensive to build. This would be partially offset by the fact that culinary programs require much in the way of supplies (food and other) and growth helps to provide an economy of scales, increasing operational efficiency. Also, it is naturally desirable for a program to gain esteem and a fine reputation. No specific graduation/retention rates have been established, but as the new program evolves, those should be considered. The three-tier progressive, multiple graduation design will encourage this.

Needs for Accreditation

Many culinary programs currently available are accredited by the Accrediting Commission of Career Schools and Colleges (ACCSC). This is explicitly ***not*** acceptable. The program must be accredited through the institution in which it is housed, by a full university and college accrediting body (such as Middle States Commission on Higher Education, which accredits prestigious research universities such as Bucknell and Cornell universities). With this accreditation, no other would be necessary. For recruitment purposes and to increase the prestige

of the program, it may be desirable to consider accreditation by the American Culinary Federation. This could also be beneficial because the ACF now builds lower-level professional certifications into their accreditation. It is firmly believed, based on previous experience with ACF accreditation, that the program already meets all the necessary requirements. It may also be beneficial to affiliate with the Research Chefs Association (RCA). They hold the copyright on the term "culinology", which is used in one of the CIP codes listed above. The program as written may or may not fill all requirements required by RCA, and they require adoption of certain of their published textbooks.

Library resources:

The program will require a reasonably extensive collection of culinary-related books and cookbooks. Initial cost estimate is $5000.

Technology resources:

The program will require the purchase of subscriptions to several important software programs and the development of the food journal/log book application for smart phones. Software would likely include, QuickBooks, MasterCook, ChefTec, and Food Processor. Initial cost estimate is $8000.

Facilities needed:

The program will need to have a kitchen lab that is large enough to accommodate 24 students at a time and versatile enough to be usable for all the hands-on cooking classes. The lab will need to be fully equipped and stocked with small wares and tools. There will also need to be a facility for the purchasing, receiving, storage, and distribution of food products and other

materials. The cost of such facilities could vary greatly, depending on numerous variables. In an existing space, an initial cost estimate is $2 million. I currently manage a program that has four kitchen labs. They were built from the ground up in a new building, along with necessary regular classrooms; the cost five years ago was $9 million.

Kitchen lab materials and upkeep cost:

Maintenance of the kitchen lab, replacement of equipment due to depreciation and shrinkage, and purchasing of necessary lab supplies and food is estimated at $800 per student per semester.

Course Descriptions

Fundamentals of Cooking (Classroom/Online Hybrid)

This course is designed to familiarize the student with the essential information and knowledge needed to achieve basic competence in cookery. Emphasis is on foundational skills such as knife technique, the safe and proper use of food service equipment, stock and soup production, product evaluation, and ingredient identification. Common cooking methods and essentials of food science will be stressed.

This course combines classroom learning activities with hands-on cooking labs to provide an overview of fundamental cooking principles and food preparation. Students will develop proficiency in a variety of cooking skills including professional knife use, the proper execution of various cooking techniques, and the identification and selection of a variety of food ingredients.

Fundamentals of Cooking Lab (Kitchen Lab)

The Fundamentals of Cooking Lab is designed to integrate hands-on kitchen practice of concepts, techniques, and methodology covered in the Classroom/Online Hybrid course, *Fundamentals of Cooking*.

Objectives: Upon the successful completion of the combined *Fundamentals of Cooking* courses, the student will:

1. Demonstrate the ability to properly identify and safely use a variety of common commercial kitchen cooking and production equipment.
2. Demonstrate the ability to properly identify and use a variety of commercial kitchen small wares, including knives, utensils, various pots and pans, and assorted specialty items.
3. Accurately and correctly identify, describe, and produce the five "mother sauces": béchamel, espagnole, tomato, hollandaise (mayonnaise), and volouté.
4. Accurately and correctly identify, describe, and produce white and brown stocks and broth using various main ingredients such as chicken, veal, or beef.
5. Accurately and correctly identify, describe, and utilize various cooking techniques used in the production of stocks, sauces, and soups including three types of roux, slurry, emulsification, reduction, and monter au buerre.
6. Demonstrate a thorough understanding of standardized recipes and the ability to properly use, manipulate, and convert as needed.
7. Demonstrate a thorough understanding of U.S. standard weights and measure used in cooking and the ability to properly apply this knowledge in the proper execution of recipes.

8. Recognize and define the meaning of the term “mis en place”. Identify, describe, and utilize a variety of common mis en place kitchen ingredients, such as herbs, spices, seasonings, oils, vinegar, various condiments etc.
9. Demonstrate competency using a professional chef’s knife and the ability to identify, define, and produce common knife cuts, such as brunoise, small dice, medium dice, mince, chiffonade, and etc.
10. Demonstrate the ability to identify, define, and produce a variety of soups including clear, thick, and puree soups and common varieties such as chowder, gumbo, or bouillabaisse.
11. Demonstrate and apply a practical understanding of the physics of cookery and heat transfer; differentiate between types of heat transfer such as convection, conduction etc.
12. Demonstrate and apply a practical understanding of the effects of heat on various common components of food: sugar will caramelize, protein will coagulate, etc.
14. Define and demonstrate the ability to properly execute the dry heat cooking methods: broiling, grilling, baking, roasting, sautéing, pan-frying, and deep-frying.
15. Define and demonstrate the ability to properly execute the moist heat cooking methods: boiling, simmering, poaching, steaming, and poêle.
16. Define and demonstrate the ability to properly execute the combination cooking methods: stewing and braising.

*Specific objectives for this class need to be collaboratively constructed by credentialed scholars of appropriate expertise.

Food Appreciation: The Physiology and Psychology of Taste (Classroom/ Online Hybrid with Dining Room and Kitchen Lab Access)

This course is designed to help students explore the question, "What is good food?" through an examination of art, religion, and philosophy. Additionally, students learn the art of wine tasting and the application of professional tasting techniques to foods of the world. Students explore gourmet, challenging, and exotic foods and learn to differentiate good food from bad and distinguish these from personal tastes. The course will instigate an understanding about eating behaviors; students will evaluate and analyze their own eating habits. In order to become a professional culinarian, each student must understand, evaluate, and eat good food. They must be willing to try new and different foods and attempt to overcome any food aversions.

Objectives: Upon the successful completion of the *Physiology and Psychology of Taste* course, the student will:

1. Demonstrate the ability to critically evaluate and describe wine in a professional manner.
2. Correctly identify and distinguish common wines such as Cabernet Sauvignon, Pinot Noir, Chardonnay, Chenin Blanc, and Riesling in blind tasting.
3. Discuss and explain the impact caused by various religious beliefs and philosophical views on people's perceptions of desirable or undesirable foods and food characteristics.
4. Show understanding of high art vs. low art foods and high quality vs. low quality foods, and based on this, differentiate between truly good food and their own personal food preferences.
5. Describe and discuss some ways in which it is possible for an individual to like and prefer some low art, low quality foods, and dislike some high art, high quality foods.
6. Compare, contrast, and discuss similarities in art and food appreciation.
8. Taste and evaluate a wide variety of uncommon foods of the world.

9. Develop and demonstrate the ability to accurately describe food and drink both in speech and in writing.
10. Develop and demonstrate a sense of adventure when exposed to new and different foods.
11. Define, describe, and interpret how the physical senses affect people's perceptions of food and eating habits, and explain why the term "tasting" really means "sensory evaluation" and uses all five (or possibly six) senses.

* Additional objectives are needed to cover important aspects of food and psychology and should be developed by or in cooperation and collaboration with credentialed scholars of appropriate expertise.

Kitchen Facilities Management, Equipment and Food Safety and Sanitation

(Classroom/Online Hybrid with visiting access to kitchen lab.)

This course is designed to expose the student to essentials of food facility management. Kitchen design, production flow and equipment selection, and maintenance will be addressed. Basic building maintenance of water/plumbing, electrical service, natural gas, refrigeration, waste removal, fire suppression, and HVAC will be introduced. Issues related to food and worker safety and related legal issues will be addressed. All students are required to successfully complete the National Restaurant Association ServSafe Manager Certification Examination in order to successfully pass the course.

Objectives: Upon the successful completion of the *Kitchen Facilities Management, Equipment and Food Safety and Sanitation* course, the student will:

1. Identify and define a variety of commonly used kitchen equipment and describe their purpose and safe/sanitary operation.
2. Demonstrate the ability to read and understand major equipment specification sheets.

3. Describe and identify the process for purchasing kitchen equipment and discuss when and where it is reasonable or effective to consider used equipment.
4. Design or re-design a functional kitchen for a specific operation with demonstrated understanding of:

- Traffic flow
- Product flow
- Work centers
- Work sections
- Building codes
- Appropriate equipment selection
- Efficiency and economy
- Utilities and construction materials

5. Successfully complete all course work for the National Restaurant Association ServSafe Manager Essentials Training Course.
6. Successfully complete the National Restaurant Association ServSafe Manager Certification Examination with a passing grade and earning the ServSafe Manager Certificate.
7. Demonstrate an understanding of various maintenance contracts, including those for refrigeration and pest control.

*Additional specific objectives for this class need to be collaboratively constructed by credentialed scholars of appropriate expertise.

Life Skills for Professional and Scholastic Success and Personal Well-being (Classroom/ Online Hybrid)

In this course, students will explore the fundamental role of personal values and emotional intelligence. It will cover a variety of topics designed to help them feel a greater sense of control over their lives. Attitudes and attributes of highly successful people will be examined, and students will participate in goal setting and decision-making activities. Students will be encouraged to understand their own personal identity and needs for things like achievement, attachment and intimacy, self-expression, and service to others. Subject possibilities include: effective study and work habits, job interviewing skills, soft personal skills development, personal financial planning, understanding insurance and other human resources benefits, effective time management, evaluation of internet resources, college level work expectations, and assignment standards.

Objectives: Upon the successful completion of the course, the student will:

*Specific objectives for this class need to be collaboratively constructed by credentialed scholars of appropriate expertise. Course developers should consider that culinary programs tend to attract students from a *very* diverse range of backgrounds, ranging from a mid-life career-changing attorney or engineer to traditional college-aged students who barely earned a GED. Care must be taken that this class is flexible and adaptive enough to allow for the necessary growth and development of all students by recognizing that they have very different needs.

Fundamentals of Baking and Desserts (Classroom/Online Hybrid)

This course is designed to provide students with a working knowledge of bakeshop operations. Foundational knowledge of ingredients, methodologies, and bakery science will be stressed. Students will describe and explain a wide variety of baked goods and desserts.

Fundamentals of Baking and Desserts (Kitchen Lab)

This lab is designed to integrate hands-on kitchen practice of concepts, techniques, and methodology covered in the Classroom/Online Hybrid course, *Fundamentals of Baking and Desserts.*

Objectives: Upon the successful completion of the combined *Fundamentals of Baking and Desserts* courses, the student will:

1. Demonstrate the ability to accurately identify, safely and correctly use, and properly maintain a variety of commonly used bakeshop tools and equipment.
2. Describe and explain use and specialty of a variety of commercial bakers' oven types.
3. Demonstrate the ability to follow bakers' recipes and/or formulas and properly manipulate both.

* Objectives for this course need to be completed by a qualified (certified) pastry chef or baker. In general, each student must explain, define, identify, and demonstrate certain applicable skills, and produce products at a developing professional level the following:

- Quick breads
- Yeast breads and rolls
- Pastry such as basic Danish
- Pies
- Cookies
- Cakes, Icing, basic decorating
- Ice Cream

*Specific objectives for this class need to be collaboratively constructed by credentialed scholars of appropriate expertise.

Culinary Mathematics, Statistics and Spreadsheets (Classroom/Online Hybrid) **Prerequisite:** Students must pass an entrance exam or equivalent, or college-level math course, or have a 20 or higher ACT score, or have a 1010 score on the SAT.

In this course, students undergo a fast-paced and in-depth review of how math is used in business and culinary calculations. Students will develop and demonstrate proficiency in arithmetic, basic Geometry, and introductory Algebra without the use of electronic devices. Spreadsheets such as Excel and other computerized programs and calculators will also be used to analyze real problems common in the culinary business.

Objectives: Upon the successful completion of the *Culinary Mathematics, Statistics and Spreadsheets* course, the student will:

* Specific objectives for this class need to be collaboratively constructed by credentialed scholars of appropriate expertise. It is important to note that the outcomes are to be specifically designed to familiarize students with the topic materials in ways oriented to be useful to the professional culinarian. While designed to be broad in scope and practical in application, the course should be quite rigorous and no less challenging than traditional College Algebra or Descriptive Statistics classes. Course designers must work with developers for, and in careful consideration of, the class *Advanced Food Industry Finance; Managing for Profit,* for which this is a prerequisite.

Philosophical and Religious Influence on the Culture of Food (Classroom/Online Hybrid)

Designed as a collegial symposium course, students will be exposed to a broad overview of philosophical thought, religion, and logic. Through a series of selected readings, discussions, presentations and writing assignments, students will learn to identify with the humanity of food. Students will view food from a variety of human perspectives to

tackle difficult subjects like food metaphysics, food politics, food sustainability and social equity, gustatory aesthetics, and food identity. Additionally, students may be challenged to reverse the thought process to consider the question, "What about the influence of the food and food culture on religion, philosophy, or politics?"

Objectives: Upon the successful completion of the *Philosophical and Religious Influence on the Culture of Food* course, the student will:

* Specific objectives for this class need to be collaboratively constructed by credentialed scholars of appropriate expertise. The course is intended to provide students with an introduction to the various schools of philosophy and religions of the world; that they should be *literate* in this subject material and able to engage in intelligent and meaningful discussion about it. Logic should be introduced. The food component of the course should be secondary and used to focus the primary material and provide a source of interest. Academic rigor is of great importance, and the class should be equally as arduous as any similar course at traditional colleges and universities. Excellent and appropriate material can be found in the book *The Philosophy of Food*, ed. David M. Kaplan (Berkeley: University of California Press, 2012) or on the website food.unt.edu, which belongs to "The Philosophy of Food Project" that is housed in the Department of Philosophy and Religion at University of North Texas.

Managing Prepared Food Delivery Systems, Dining Service, Catering and Event Planning

(Classroom/Online Hybrid with Dining Room access)

This course offers an overview of important aspects of the culinary profession that are often referred to as "front of the house" management, as opposed to food and kitchen operations, which are called "back of the house." Students will learn the delivery of

prepared food from a simple hot dog stand to a multi-course, Russian-service dinner. The class covers an introduction to event planning and execution, catering, marketing, sales, advertising, promotion, and public relations. Lastly, the course will introduce the student to the supervision and management of employees performing all of these functions.

Objectives: Upon the successful completion of the *Managing Prepared Food Delivery Systems, Managing Dining Service, Catering and Sales* course, the student will:

1. Describe and explain a variety of prepared food delivery systems and styles of service.
2. Explain the assorted important staff positions used in food delivery systems, their duties, and responsibilities.
3. Discuss and demonstrate an essential understanding regarding supervision of employees, costs, limitations, effectiveness, management, and legality in delivery systems.
4. Define, explain, and differentiate event planning and execution, catering, marketing, sales, advertising, promotion, and public relations.

Note: The term, "prepared food delivery systems" refers to and replaces the more traditional culinary/food industry term "service." The process of food moving from the kitchen to the person who eats has become too diverse for "service" to be inclusive and accurate; rather it is one form of food delivery. Prepared food delivery can mean everything from a person self-serving a hot dog off a roller at the gas/quickie mart, to sit-down traditional white tablecloth restaurant service from a professional wait staff in formal attire. Now we also have food trucks, pop-ups, and places where people go and cook in a class and take the food home. Grocery stores of all kinds do a large percentage of their sales in prepared foods with hot-lines, salad bars, and sushi bars; there are online stores where people can get an overnight delivery of a spectacular array of fresh-prepared foods. Finally, there is

literal delivery by a provider to a consumer, and this element has moved far beyond the bringing of pizza to people's front door. There are Uber-like delivery services that will deliver food from virtually anywhere in a city.

* Additional specific objectives for this class need to be collaboratively constructed by credentialed scholars of appropriate expertise. The included objectives probably encompass the entirety of the course; however, to be accurate, they are currently inadequate because they are too generalized. The committee should expand the current objectives to include more details such as target markets, market planning, discounts, and coupons, and merchandising or different varieties of catering, such as weddings vs. business coffee/continental breakfast or negotiations, pricing strategies, and contracts for events. The food delivery systems should be broken down as individual systems or in sensible categories.

Cooking Skills Development (Classroom/Online Hybrid)

This course is designed to flow naturally from and build on skills and knowledge developed in the class *Fundamentals of Cooking*. Students will study a variety of individual foods and food categories in detail, such as pork, veal, vegetables, cheese, eggs or corn, rice, and other grains. Students progress beyond the practice of kitchen fundamentals; they properly use equipment and execute cooking techniques, knife skills etc., previously acquired consistently and correctly. Further, students learn techniques and skills that are more advanced and practice subtleties in the production of high quality food. Presentation and timing in food production are practiced and emphasized. Students will demonstrate and experience pride in their work and learn to cook with zeal and passion about the excellence and quality of foods produced.

Cooking Skills Development Lab (Kitchen/Lab)

The *Cooking Skills Development Lab* is designed to integrate hands-on kitchen practice of topics, concepts, techniques, and methodology covered in the course, *Cooking Skills Development* (Classroom/Online Hybrid)

Objectives: Upon the successful completion of the combined *Cooking Skills Development* courses, the student will:

1. Demonstrate efficiency and proficiency in the use and maintenance of professional chefs' knives and tools.
2. Develop and demonstrate the work habits and standards of excellence that are known to lead to culinarians' success. He or she will show an understanding of kitchen flow and how to move quickly, with an appropriate sense of urgency at various times or in the completion of assigned tasks.
3. Demonstrate proficiency in appropriate interpersonal communication and a growing understanding of kitchen language and culture.
4. Correctly and accurately follow directions and recipes but not blindly, rather with a sense of creating good quality products. Asks appropriate questions and suggests solutions to problems that may arise.
5. Regularly produce and present high quality, nice looking, and delicious food as assigned.
6. Correctly execute the break down/fabrication of a fryer chicken according to certification standards established by the American Culinary Foundation in a specified time frame.
7. Demonstrate the ability to properly produce standardized classical knife cuts of high quality/accuracy within reasonable time frames. These could include: brunoise, julienne, battonettes, tourne, chiffonade, mince, and small, medium and large dice, among others.

8. Show the ability to match and execute proper cooking methods and techniques appropriate to specific foods.
9. Show the ability to identify appropriate foods that could be used to execute a specific cooking method or technique.
10. Demonstrate a sense of teamwork at all times, take on leadership responsibilities, help others and generate good will, and work to create good morale in the kitchen.
11. Demonstrate an acute awareness of kitchen protocol, proper product storage, safety, sanitation, and cleanliness. Always work clean and neat; clean up after others.
12. Articulate verbally, in writing and in practice, a solid foundational understanding of the following food categories:

- Vegetables
- Fruit
- Potatoes, assorted grains, rice, pasta and other starchy foods
- Eggs, milk, cheese and other dairy products
- Kitchen staples such as salt, spices, herbs, oils, vinegars and condiments.
- Beef
- Lamb
- Veal
- Chicken and other poultry
- Fish, shellfish, and other seafood

* Specific objectives for this class need to be collaboratively constructed by credentialed scholars of appropriate expertise.

Introduction to Food Science and Research (Classroom/Online Hybrid)

This course is designed to generally introduce the student to all of the various fields of science, the scientific method, and basics of scientific research. It will make students more capable consumers of scientific information through the development of the ability to read and interpret scientific research; additionally, students will recognize and critique false scientific claims. The course is developed to skew only slightly toward food science by recognizing the relative importance of various scientific fields to culinarians. For example: Astronomy will be introduced, but more time may be spent on chemistry.

Objectives: Upon the successful completion of the *Introduction to Food Science and Research* course, the student will:

* Specific objectives for this class need to be collaboratively constructed by credentialed scholars of appropriate expertise. Teachers and curriculum developers are instructed that this should not be an easy class by any means; it is not intended to be "dumbed down" science for people who would never pass a regular biology or physics course. They should recognize that scholars of actual food science start with preliminary classes in other fields. Examples and class discussions should lean toward culinary topics when possible, but an overview of all science is important, geology and astronomy included. To reiterate, this course is designed to be a broad, diverse, and practical introduction to science and the scientific method for culinarians but should maintain a high level of academic rigor. Upon successful completion of the course, students should be literate in the various fields of science and capable of intelligent and knowledgeable discussion of related topics.

Food Writing and Journalism (Classroom/Online Hybrid) **Prerequisite:** Students must pass an entrance exam, or an equivalency, or a college-level English course, or have an SAT

score of 500 or higher in Evidence-Based Reading and Writing, or have a 20 or higher ACT score in English.

The purpose of this course is to introduce students to a possible career path or possible secondary income source. The express difference between journalism and other forms of communication will be emphasized; the student will become a strong consumer of information with the ability to distinguish true and factual information from disinformation and misinformation. The practice of journalism is governed by rules and a code of ethics established by the Society of Professional Journalists referred to as the "SPJ Code of Ethics"; a systematic process is used to not just find news (facts), but also verify them. The purpose of journalism is to provide people with verified information that they can use to make informed decisions. Good journalism and voters capable of understanding it are keys to a successful democratic society. Students will produce various forms of writing, both journalistic and non-journalistic styles. Food business-related topics will be used often. Examples include a food news report, a five-paragraph style food feature article, a business letter, a resume, and an editorial (food or restaurant review).

Objectives: Upon the successful completion of the *Food Writing and Journalism* course, the student will:

1. Consistently and accurately distinguish journalism from other forms of communication.
2. Distinguish verified and true information or facts from ones of a questionable nature.
3. Recognize the relative strength of sources for information. Original sources and peer-reviewed journals are strong; most of the Internet and popular magazines are not.
4. Produce various specific styles of business or publishable writing (see note).

* Specific objectives for this class need to be collaboratively constructed by credentialed scholars of appropriate expertise. Teachers and curriculum developers are instructed to add and expand the learning objectives without changing the integrity of their nature. The purpose of the class is not to teach traditional "college writing." This course will include practical assignments rather than research papers. Weekly writing assignments should be the rule of thumb; they will emphasize concise, highly communicative writing, sound but not fastidious grammar, and correct spelling. Emphasis will be on practical and applicable business and culinary writing. Specific formatting styles for writing, such as APA and MLA, will not be addressed.

Human Resources and Supervision (Classroom/Online Hybrid)

This class is designed to prepare the student for entry-level food management positions and is specifically oriented towards gaining a sound understanding of human relations in the workplace and management interaction with employees. Topics will include direction of and delegation to employees, training and training program development, styles of leadership, management and supervision, employee motivation and organizational behavior. Students will become familiar with the recruitment and hiring of new employees and the evaluation and possible disciplinary action, including termination of problem employees. Students will be introduced to the importance of adhering to all legal requirements in management-labor interaction, including the Fair Labor Standards Act.

Objectives: Upon the successful completion of the *Human Resources and Supervision* course, the student will:

1. Describe, discuss, and explain a variety of terms including, but not limited to, human resource management, supervisory management, workplace environment, corporate culture and

organizational behavior, management and leadership styles, employee motivation, training, and management by objectives.

2. Determine their own most effective leadership style *and* recognize what leadership style may be most motivational to specific types of individuals.
3. Describe a variety of motivational techniques such as job enrichment, job enlargement, cross-training, and job rotation.
4. Discuss and explain a variety of ways supervisors and managers can achieve increased product quality and productivity.
5. Explain why empowerment and support are critical components in the delegation of authority.
6. Discuss and explain important considerations for decision-making and problem solving and show understanding of specific decision-making processes and tools and describe a variety of problems frequently encountered in food management. Recognize and differentiate their levels of urgency and identify appropriate solutions.
7. Write an effective job performance objective.
8. Write and administer an effective job performance objective training module.
9. Describe several job performance evaluation/appraisal systems and explain their administration and some pros and cons of each.
10. Write an effective and accurate job description.
11. Describe and explain the importance of recruiting and retaining the best possible employees and techniques and methods used in doing so.
12. Demonstrate a thorough understanding of all common and important legislation dealing with management-employee relations and the ability to adhere to them in practice. Show familiarity with Family Medical and Leave Act, the Fair Labor Standards Act and others.

Discuss the proper handling of issues such a sexual harassment or violence in the workplace.

13. Discuss and explain job growth for employees and managers through various methods including education, motivation, planning, organization, and time management for productivity.
14. Explain legal and practical issues related to developing and administering employee compensation.
15. Demonstrate formative understanding of the role of unions and collective bargaining in the workplace and define the responsibility of managers regarding them.
16. Demonstrate a working understanding of all local, state, and federal legislation and regulation as it applies to workers and employees.

Butchering, Meat Cookery, Charcuterie, and Garde Manger (Classroom/Online Hybrid)

This course is designed to cover four distinctly different but related topics:

Butchering/fabrication, Meat and Fish Cookery, Charcuterie, and Garde Manger will each be taught/learned during approximately four weeks or one-quarter of the semester and each will have a comprehensive written examination paired with a practical during the lab that accompanies this class. Butchering is defined as the slaughter (which is not actually done in this class) and fabrication of animals and fish from a whole carcass into primal, sub-primal, and end use portions and will be learned and practiced as specified by the North American Meat Institute "the Meat Buyers Guide" and "the Commercial Guide to Fish and Shellfish" and in accordance with standards set by other professional organizations, including the American Culinary Federation. Charcuterie is the artistic side of meat processing that may follow butchery. It is the production of foods like breakfast

sausage, bologna, ham, bacon, or gravlax. Garde manger is the artistic side of cold food production and preservation. Examples of garde manger work include salads and salad dressing, pickles, preserves, a variety of cold hors d'oeuvres, appetizers, canapés, and pâté.

Butchering, Meat Cookery, Charcuterie, and Garde Manger (Kitchen Lab)

Butchering, Meat Cookery, Charcuterie, and Garde Manger Lab is designed to integrate hands-on kitchen practice of concepts, techniques and methodology covered in the Classroom/Online Hybrid course, *Butchering, Meat Cookery, Charcuterie, and Garde Manger.*

Objectives: Upon the successful completion of the combined courses, *Butchering, Meat Cookery, Charcuterie, and Garde Manger,* the student will:

1. Correctly identify and/or explain and/or describe primal, sub-primal and end use cuts for beef, lamb, pork, veal, and poultry.
2. Demonstrate foundational knowledge of fish, shellfish, beef, lamb, pork, veal, and poultry such as types, classifications, quality aspects, structure, grading, and inspection.
3. Participate and demonstrate proficiency in the butchering and fabrication of a side of beef, a whole lamb, a whole hog, selected primal cuts of veal and a variety of poultry, fish and shellfish.
4. Demonstrate and apply a sound knowledge of and the ability to correctly execute a variety of cooking techniques, methods, and recipes for all of the common meat sources.
5. Demonstrate the ability to correctly match cooking techniques, methods, and recipes to specific fabrications of various meats and vice versa.

5. Correctly identify and/or explain and/or describe and/or produce a wide assortment of common charcuterie products of high quality and in accordance with accepted industry standards. Brining, dry cure, wet cure, pumped cure, smoking, simple sausage, emulsified sausage, and natural cased sausage will all be included.
6. Explain the function of the garde manger in the classical brigade system and explain its relevance and use in the modern kitchen.
7. Correctly identify and/or explain and/or describe and/or produce a wide assortment of common garde manger products. Salads and dressings, assorted cold sauces, emulsified cold sauces, coulis, salsa, canapés, hors d'oeuvres, pates, galantines, terrines, jams, pickles, and ferments such as Kim Chee and sauerkraut will all be included.
8. Describe, explain, identify, and demonstrate various meat cookery techniques, procedures, processes, and recipes.
9. Correctly describe and produce a variety of hors d'oeuvres, appetizers, canapés, and intermezzos.
10. Describe the cheese making process, the specific types of cheese and their production methods. Identify and describe individual artisanal cheeses and demonstrate the ability to evaluate them for quality. Correctly produce simple fresh cheese.
11. Identify and explain a variety of gourmet foods typically associated with garde manger such as foie gras, truffles, real wasabi, corn smut, morels, and caviar. Describe determinants of quality in these items and their common uses and proper service.
12. Demonstrate the ability to produce a modern garde manger/charcuterie platter, including some traditional techniques such as aspic glaze and choid-froid.

* Specific objectives for this class need to be collaboratively constructed by credentialed scholars of appropriate expertise. Teachers and developers will find excellent resources for information in the following texts:

- *Professional Cooking* by Wayne Gisslen, 7th edition, isbn 9780470197523
- *On Cooking* by Sarah Labensky, 5th edition isbn 0133458555
- Charcuterie: The Craft of Salting, Smoking, and Curing by Michael Ruhlman and Brian Polcyn, isbn, 978-0393058291
- *Great Sausage Recipes and Meat Curing* by Rytek Kusig
- *The Cheese Primer* by Steve Jenkins

Food Styling and Photography (Classroom/Online Hybrid with access to Dining Room and Kitchen Lab)

The course is designed to provide students with the basic skills necessary for successful food photography. Students will practice both still photography and video production and their purposeful use in telling a food story, rather than capturing an image. Students will have an opportunity to work with and produce outstanding results using both state of the art digital cameras and iPhones. Food stylists use a variety of techniques that go beyond cooking and food preparation to make food look fresh, vibrant, beautiful, and believable on the photography set. The course will emphasize the use of natural and edible foods over complete stylization; no shoe polish colored turkey or Sharpie marker grill stripes here. Topics range from how-to videos, menu productions shoots, and magazine or cookbook photography.

Objectives: Upon the successful completion of the *Food Styling and Photography* course, the student will:

1. Demonstrate the ability to produce a high quality still life photo of food using both a smart phone like iPhone and a high-tech digital camera like an Olympus E-M5 II.
2. Demonstrate entry-level expertise in food styling and set design, including evidence of solid comprehension of the fundamentals of composition, lighting (natural and synthetic), perspective, and the sourcing of appropriate props (plates, boards, utensils, glassware etc.).
3. Discuss and explain numerous trends in food photography and some business aspects of freelance food styling and photography.
4. Demonstrate the ability to produce a high quality how-to video for use as an in-house training seminar or a You Tube promotion for a culinarian, restaurant or other business, or a product.

* Specific objectives for this class need to be collaboratively constructed by credentialed scholars of appropriate expertise. The objectives included here are general and need to be more detailed and specific. For example, professional food photographers use a variety of specialized camera techniques for specific foods, such as using light and shadows to bring depth and texture to a dull looking food like brown rice. These techniques should be elaborated and delineated. Styling methods like "painting" a steak with oil to make it look juicy and appetizing also need to be enumerated.

Introduction to Food Industry Finance, Accounting, Purchasing and Operational Cost Control (Classroom/Online Hybrid) **Prerequisite:** *Culinary Mathematics, Statistics and Spreadsheets*

This class is designed to instill a deep sense of understanding in regard to institutional profitability. Many factors motivate individual and organizational behavior, but in the

end, earnings must be recognized as the primary reason that people work and that businesses exist; even not-for-profit organizations need proceeds and financial accountability. A simple rule of economics is that no individual is ever going to be paid more than they are worth. A demonstration of monetary value to a company of other organization relates directly to a professional's personal income and their ability to provide for themselves and their families or even their favorite charities if they so choose. Students will be introduced to and practice the percentage based weekly accounting system that is widely used and accepted in the food business. Details of the purchasing cycle, specific purchasing techniques, purchase orders, product specifications, receiving, and waste reduction will all be discussed and applied.

Objectives: Upon the successful completion of the *Introduction to Food Industry Finance, Accounting, Purchasing and Operational Cost Control* course, the student will:

1. Define and distinguish between the terms variable cost and fixed cost.
2. Demonstrate the ability to properly and accurately source product for and determine cost for specific menu items or prepared foods.
3. Demonstrate an understanding of important menu pricing strategies, their use, their strengths, and their weaknesses.
4. Demonstrate a thorough understanding of the purchasing cycle including, but not limited to:

- Developing product specifications for foods and other goods common to food business such as chemicals and paper products.
- Describe a variety of types of product sources/vendors and describe pros and cons of using them.

- Explain important considerations in developing product sources such as cost, quality, convenience, and so forth.
- Describe and explain common inventory and ordering systems.
- Explain important aspects of receiving deliveries of goods and their proper storage.
- Discuss possibilities and considerations for contracting the production or farming of specific foods or products.

5. Define and explain the terms, menu mix, and contribution margin.
6. Demonstrate literacy and understanding of common accounting terms, such as balance sheet and profit statement.
7. Demonstrate thorough understanding of the percentage-based accounting system used in the food business by describing and producing an accurate and complete weekly financial report for an organization.
8. Discuss and explain various ways that theft is a problem in food service industries and methods for its prevention.
9. Describe specific ways to reduce waste of product and develop an action plan to target a known waste problem in an existing operation.

* Specific objectives for this class need to be collaboratively constructed by credentialed scholars of appropriate expertise. Developers should recognize and emphasize weekly percentage accounting systems; no student should pass this course without the ability to produce, read, and interpret documents used in this important food business system.

Business Development, Marketing, Sales and Public Relations (Classroom/Online Hybrid)

This class will provide the student with an introduction to all aspects of business related to increasing profits through the utilization of various strategies to increase the volume of

revenue for a particular operation that do not alter or change the actual product or service. Students will learn to differentiate between different related terms like marketing vs. advertising vs. promotions. Students will learn to develop a target market, a specific budget, and a plan to influence those potential customers. Emphasis will be in determining value in marketing strategies and attempt to answer questions like:

- If we run a radio commercial for $1000, how much do we need to increase product sales to offset the advertising expense?
- If we run that ad and sales increase, how do we know that the increase was *caused* by the ad and not by some other factor?
- If we run a coupon campaign, we know our response rate (because we know how many coupons were redeemed), but have we increased sales? Have we developed a stronger customer base, or only attracted one-time *coupon clipper customers* who are of little long-term value?

Objectives: Upon the successful completion of the *Business Development, Marketing, Sales and Public Relations* course, the student will:

* Specific objectives for this class need to be collaboratively constructed by credentialed scholars of appropriate expertise. Course developers are admonished to cover much of the material that would be in a traditional university business school class like "Marketing 101" *and* move quickly on to immediate, actionable skills that students can use to build sales for the food business in which they are involved. This class is not an "Intro To" course; it is the only course in this broad topic these students may ever take. Acute awareness of the highly competitive nature of food businesses is paramount and creates unique marketing problems. With a national average of well-run restaurants

averaging a profit of ten cents on the dollar of income, it takes $10,000 of revenue to cover the cost of a $1,000 ad! That is a lot of burgers or pasta dinners that must be produced and cleaned up. It can amount to a lot of wear and tear on facilities, equipment, and staff without ultimately producing significant increase in revenue or, for that matter, any at all. This author has often asked students, "What if you just gave away a thousand dollars' worth of free beer?"

Supervised Food Work Experience Internship I and II **(400 contact hours)**

The purpose of the internship is to provide a guided work experience in the food profession. It is the student's responsibility to gain access to a job experience if they are to receive payment or other compensation. The instructor for the course must approve the position. If the student is unable or unwilling to find a job, the instructor will arrange for an unpaid internship. Specific learning and experiential objectives will be collaboratively constructor by the student and the instructor, depending on the internship sight and long-term employment goals of the student. Accomplishment and completion of the objectives will be co-verified by the student, the instructor (who visits the internship site on multiple occasions), and by the immediate supervisor of the internship site.

Sample objectives: Upon completion of the internship, the student will:

1. Design and implement a plan to improve operational efficiency and performance.
2. Demonstrate the ability to consistently perform the job of line cook-sauté without assistance on a regular basis.
3. Write an effective employee schedule.
4. Forecast sales and use this to predict future labor cost.

5. Assess and evaluate indicators of employee morale, both high and low, and develop an action plan for its improvement.
6. Demonstrate the ability to self-motivate and actively improve own performance and production capabilities.
7. Effectively participate in and/or lead a team.

Advanced Bread, Desserts and Pastries (Classroom/Online Hybrid)

This course is designed to build directly onto its prerequisite, *Fundamentals of Baking and Desserts.* Students will become familiar with a wide assortment of specialty ingredients and practice many of the unique tricks and techniques used in the production of various bakeshop products. Students will practice production of elegant plated desserts, artisanal breads, dessert buffets, and elaborate wedding cakes.

Advanced Bread, Desserts and Pastries (Kitchen Lab)

Advanced Bread, Desserts and Pastries Lab is designed to integrate hands-on kitchen practice of concepts, techniques and methodology covered in the Classroom/Online Hybrid course, *Advanced Bread, Desserts and Pastries*.

Objectives: Upon the successful completion of the combined courses for *Advanced Bread, Desserts and Pastries* course, the student will:

1. Demonstrate the ability to use, create, scale, and manipulate standardized bakeshop recipes and formulas. Adapt formulas into recipes and vice versa.
2. Demonstrate thorough understanding of the use, maintenance, and sanitation of a variety of bakeshop equipment including different types of bakers' ovens.
3. Explain and produce many advanced yeast breads using a variety of techniques to result in different shaped rolls, buns, and loaves. Describe appropriate use for the different

products.

4. Produce a high-quality wedding cake or other specialty cake.
5. Produce and explain a variety of quick breads including muffins, croissants, cupcakes, English muffins, pancakes, waffles, biscuits, and scones.
6. Produce and explain a wide variety of plated desserts in contemporary artistic presentation.
7. Produce and explain a variety of cold desserts including ice cream, sorbet, gelato, and frozen novelties.
8. Demonstrate an understanding of and participate in the production of a bakeshop buffet presentation that may include traditional show pieces like bread baskets, pulled sugar, and butter sculptures.
9. Produce and explain a variety of petit fours, cookies, bars, confections, candies, and chocolates.
10. Produce and explain a variety of different pies, tarts, pastries, strudel, phyllo, and others.

* Specific objectives for this class need to be collaboratively constructed by credentialed scholars of appropriate expertise. Developers should endeavor to steer the course towards practical, applicable skills development. Advanced pastilliage, elaborate and inedible bread sculptures, and beautiful pulled sugar displays like a fish aquarium are often greatly interesting to instructors, but of no real use to students. These topics should be *introduced*, but the student should form expertise on-the-job and through continuing education.

Readings in Food Literature (Classroom/Online Hybrid) **Prerequisite:** *Food Writing and Journalism* (Classroom/Online Hybrid)

This class is intended to introduce the student to the world of literature as defined by Merriam-Webster, "writings in prose or verse; *especially:* writings having excellence of form or expression and expressing ideas of permanent or universal interest" (Merriam-Webster, Incorporated, 2018, "Literature," Def. 3a 1). Students will develop skills of critical literary interpretation and reading strategies relevant to *advanced* work in English. The readings for the course are extensive and, for the most part, comprehension is expected and assumed; class time and assignments will be spent on analysis, critique, and argument.

Objectives: Upon the successful completion of the *Readings in Food Literature* course, the student will:

* Specific objectives for this class need to be collaboratively constructed by credentialed scholars of appropriate expertise. Course developers are instructed to carefully differentiate between *food in literature* and *literature of food.* For example, *A Moveable Feast* by Earnest Hemmingway provides a great example of food **in** literature and is suitable for this class. However, *Kitchen Confidential* by Anthony Bourdain is literature **about** food and is not appropriate. Some suggested resources include:

- *Reading Food in Modern Japanese Literature* by Tomako Aoyama
- *Modest Proposal* by Jonathan Swift
- *The Legend of Sleepy Hollow* by Washington Irving
- *Ulysses* by James Joyce
- *A Moveable Feast,* by Earnest Hemmingway

Food Supply-chain Management (Classroom/Online Hybrid with Kitchen Lab access)

Prerequisite: *Introduction to Food Industry Finance, Accounting, Purchasing and Operational Cost Control* (Classroom/Online Hybrid)

This course will provide functional knowledge in food systems and commodity chains as concepts and methodological tools for uncovering the relationship between communities, agriculture, markets, and consumers. It will reinforce lessons learned about the purchasing and the purchasing cycle covered by its prerequisite; however, the focus here is on the procurement of food products directly from their source rather than through a purveyor of any kind. Students will learn to develop local and/or direct suppliers for farm produce, meat, poultry, fish, and beverages. All legal and compliance issues from the importation of green coffee beans to the post-harvest cleaning of fresh vegetables will be addressed. Methods for long storage through freezing, canning, and other types of preservation will be presented, and students will work to develop value-added products from locally sourced foods.

Objectives: Upon the successful completion of the *Food Supply Chain Management* course, the student will:

1. Write product specifications for directly sourced foods.
2. Write and negotiate contracts with food growers/producers.
3. Develop HACCP programs for directly sourced foods.
4. Demonstrate a thorough understanding of "farm to table" food terminology including, but not limited to, organic, USDA organic, GMO, Certified Non-GMO, heritage breed, heirloom seeds, free-range and sustainably raised.
5. Initiate contacts with previously unknown food producers.

6. Develop a program for the production of value-added products from locally sourced foods.
7. Identify and explain policies, laws, and rules for the safe and healthy handling of food as issued and recommended by the United States Department of Agriculture, Food and Drug Administration, and Environmental Protection Agency, as well as local food authorities.
7. Design and create a complete dinner entrée using locally/directly sourced foods, including menu description, recipes, and cost analysis.
8. Identify and explain current market trends in menu development and marketing of local/directly sourced foods.

* Specific objectives for this class need to be collaboratively constructed by credentialed scholars of appropriate expertise. Course developers should be aware that the intention of the class can be summed up by the phrase, "Know your food". The class should contain a great deal of "field work", in which students visit farms and other producers. Students should gain a general familiarity with foods in production; they should be able to point at a plant and identify it as a potato or an eggplant, distinguish between rye and wheat in the field, and recognize a Duroc hog or a Belted Galloway beeve. When and if students insist on "organic" tomatoes, they should have personally seen a field of them wiped out by Japanese potato beetles.

Human Nutrition and Healthy Cooking (Classroom/Online Hybrid) **Prerequisite:** *Butchering, Charcuterie and Garde Manger* (Classroom/Online Hybrid)

This course takes a common-sense approach to the basics of nutrition. Students study major food sources learn the important functions of macronutrients like proteins and fats, and carbohydrates and micronutrients like vitamins and minerals. USDA dietary guidelines and MyPyramid will be introduced. Students will be encouraged to become wary and

careful consumers of nutrition information and to be aware of political and legal reasons for some food recommendations and some health concerns. Students will practice production of a variety of healthy foods and menus and develop adaptations of traditional foods that reduce generally overly consumed ingredients, such as fat and sugar, and increase generally under consumed foods like whole grains and vegetables.

Human Nutrition and Healthy Cooking (Kitchen Lab) **Prerequisite:** *Butchering, Charcuterie and Garde Manger* (Kitchen Lab) **Co-requisite:** *Human Nutrition and Healthy Cooking* (Kitchen Lab)

Human Nutrition and Healthy Cooking Lab is designed to integrate hands-on kitchen practice of concepts, techniques, and methodology covered in the Classroom/Online Hybrid course, *Human Nutrition and Healthy Cooking*.

Objectives: Upon the successful completion of the *Human Nutrition and Healthy Cooking* course, the student will:

1. Define and explain various macronutrients necessary for human health and describe a number of common food sources that provide each.
2. Define and explain various micronutrients necessary for human health and describe a number of common food sources that provide each.
3. Maintain a personal food log over a typical four-day period and produce a full nutritional analysis of it. Further, demonstrate and understanding of basic techniques (and technologies used for) the assessment of nutrient adequacy of individual diets.
4. Demonstrate an understanding of nutrition from a common-sense standpoint. For example, the student should be able to answer a question like, “How can we tell people to avoid eating sugar *and* to eat lots of fruit, which is full of it?”

5. Demonstrate the ability to use scientific evidence as a basis for dietary decision-making. Examples include:

- There is no evidence that consumption of GMO (genetically modified organism) foods are harmful, yet many people believe that they are. Further, it is ridiculous to purchase non-GMO certified pineapple juice when there is no such thing as a GMO pineapple.
- There is no evidence that anyone has ever had an allergic reaction to MSG (monosodium glutamate), and yet many people avoid this common food additive.
- Evidence regarding salt intake is unclear and at best suggests that reduced salt intake has only a small impact on health, yet healthcare professionals like dieticians continue to recommend low sodium diets. Students should ask the honest question, "Is it worth eating dull, bland, and unpleasant food all the time because it *might* lower my blood pressure by a point or two?"

6. Describe and apply simple and common techniques for measuring body composition of individuals.
7. Describe and explain the principles of energy balance and ideal body composition and weights for various human body styles.
8. Define and explain common eating disorders and their health impact on affected individuals, as well as interventions and cures.
9. Define and explain a variety of health issues that directly stem from poor diet, especially the causes of obesity and type II diabetes. Discuss how the U.S. government policies like subsidies on commodity crops, such as corn and soybeans, contribute to these health problems.
10. Discuss the MyPyramid health guidelines produced by the U.S. government.

11. Recognize various fad diets and the reasons they may actually be unhealthful. Become wary of popular diets without scientific support and recognize "health washing" when they see it. For example, it is currently popular to eat a gluten-free diet, although no scientific evidence suggests this to be healthful for any but a tiny percentage of our population with Celiac Disease. Store shelves have become full of gluten-free products, so people are beginning to assume that it should be avoided.

* Specific objectives for this class need to be collaboratively constructed by credentialed scholars of appropriate expertise in *both* nutrition and culinary arts. It is common knowledge in the food industry that professional chefs and Registered Dieticians are typically not the best of friends. It has been said that dieticians don't care what we eat, as long as it is a cup of raw broccoli and a half a cup of whole grains that taste exactly like the box they came in. Chefs, on the other hand, won't care if we die the next day after eating their food, as long as we tell them it was delicious. There is some truth to this and the two professions do seem at times to attract people who are polar opposites in personality. Further, in traditional culinary degree programs, the nutrition classes are notoriously unpopular with students and faculty alike. Great effort must be taken to give this most important subject credibility. In particular, the hands-on food production labs need to greatly emphasize the creation of dishes that are fantastically delicious *and* functionally healthful. Replacing a rich and deep recipe for chicken salad made with freshly prepared mayonnaise, bacon crumbles, and hard cooked eggs with an insipid one that contains walnuts and a drizzle of raspberry vinegar won't cut it. Take the bacon and mayonnaise chicken salad and add tangerine segments and champagne grapes, and you have a winner. It is just as tasty or perhaps even better, *and* it is more healthful.

Introduction to Gastronomy and Food Studies (Classroom/Online Hybrid)

Gastronomy is defined by Merriam-Webster as, "The art or science of good eating" (Merriam-Webster, Incorporated, 2018, "Gastronomy," Def.1). The term "food studies" evolved as an umbrella word for every conceivable notion of food and its study, including, but not limited to, historical, behavioral, cultural, biological/health/medical, socioeconomic, sociologic, psychological, habits, customs, and behavioral. This course is designed to expose the student to the myriad of ways in which scholars study food today and to emphasize the interdisciplinary nature of the field.

Objectives: Upon the successful completion of the *Introduction to Gastronomy and Food Studies* course, the student will:

* Specific objectives for this class need to be collaboratively constructed by credentialed scholars of appropriate expertise. Teachers and developers should be aware that the class is intended to cause the student to consider food as a complex human social entity far beyond just a simple biological function-nutrition, much more than culinary art or food science. Because the students take the courses, *Sustainable Food Systems and Food Policy* and *Sociology of Food*, those topics will be introduced but deemphasized in favor of other components of food studies. In particular, the class should focus on the gastronomy part and grapple with the intellectual problem of defining exactly what is "the art or science of good eating." Without an intellectual and philosophical understanding of answers to this question, no culinarian is truly capable of producing great quality foods. Students should be introduced to the practice of historical research and develop in-depth knowledge on food history in an area of their own interest.

Sustainable Food Systems and Food Policy (Classroom/Online Hybrid)

This course begins with an overview of sustainability in general and attempts to grapple with philosophical issues surrounding it. It will provide students with a clear perspective on the principles, history, and practices of food systems in local and global communities through examination of philosophical, sociological, economic, and cultural issues related to the production and consumption of food. Students will develop an understanding of the underlying issues suggesting that today's global food system is not sustainable, along with the necessary vocabulary and argumentative capacity to communicate this with others. Students will examine a variety of ways in which it may be possible to provide quality food security for a growing population through the development of small, localized food systems that promote responsible agricultural and animal husbandry practices. Students will study existing global and U.S. food policy and legislation and ways in which that legislation is damaging or helpful to the creation of sustainable food systems and sustainability as a whole.

Objectives: Upon the successful completion of the *Sustainable Food Systems and Food Policy* course, the student will:

1. Recognize and logically discuss the meaning of the term, "sustainability."
2. Once the class has reasonably agreed upon and acceptable definition of sustainability each student will produce a logical, sound, and valid argument in support of, or against, the practice of sustainable behavior of humans beginning immediately.
3. Define and articulate understanding of a variety of terms commonly associated with sustainable food systems including, but not limited to, sustainability, genetically modified organisms (GMOs), Roundup/glyphosate, hybrid, seed saving, gene splicing, retroviruses, gene guns, heirloom seeds, food system, organic, USDA Organic, pesticide,

herbicide, CSA/community supported agriculture, externalized cost of production, carbon sink, subsidy, environmentalism, ecology, monoculture, polyculture, CAFO/concentrated animal feedlot operation, cradle to grave-cradle to cradle, bioaccumulation, carbon footprint, life cycle assessment (of products), food miles, greenwashing, tragedy of the commons, IPM/integrated pest management, sustainable agriculture, CRP/conservation reserve program, fescue, sodium nitrite, environmentally sound, SlowFood, controlled burn, anecdotal evidence, alternative fact, dirty dozen-clean fifteen, no-till farming, growth hormones, growth antibiotics, permaculture, biodiversity, and locavore.

4. Identify the principles of sustainable food systems as they relate to basic production practices.
5. Demonstrate an understanding of food systems issues; invent, plan and/or demonstrate ways of impacting local food system sustainability.
6. Evaluate the perceptions and realities behind food systems issues currently in social media and articulate personal experiences and perceptions with respect to food systems sustainability.

* Specific objectives for this class need to be collaboratively constructed by credentialed scholars of appropriate expertise. Developers and teachers will find that the course is quite full of material in just ensuring that the students are fluent in the vocabulary objective. Possible additional resources include:

- *Closing the Food Gap: Resetting the Table in the Land of Plenty* by Mark Winne, Published by Harper Perennial in paperback, New York, NY, 2008, ISBN 978-0-06-085256-6

- *Crisis & Opportunity – Sustainability in American Agriculture* by John E. Ikerd, Published by University of Nebraska Press in paperback, Lincoln, NE, 2008 ISBN-13: 978-0-8032-1142-1
- *Gaia's Garden: A Guide to Home-Scale Permaculture*, by Toby Hemenway, Published by Chelsea Green Publishing, White River Junction, VT, 2009. ISBN978-1-60358-029-8

Traditional Cuisine of Europe and Western Cultures (Kitchen Lab)

This course is designed to emphasize excellence in the execution of cooking technique and instill a sense of appreciation and respect for great traditional foods. Focus will begin with the Classical French cuisine of August Escoffier, and students will be expected to produce the five mother sauces and consommé perfectly. Students will prepare meals representative of a variety of cuisines including, but not limited to, France, Italy, Germany, Russia, Scandinavia, and regional American cuisines such as Cajun/Creole, Pennsylvania Dutch, and Tex-Mex.

Objectives: Upon the successful completion of the *Traditional Cuisine of Europe and Western Cultures* course, the student will:

1. Demonstrate the ability to perfectly produce the following:

- Velouté
- Hollandaise
- Béchamel
- Espagnole
- Tomato sauce
- Mayonnaise
- Stock

- Sauce
- Consommé
- Glace
- Demi-glace

* Specific objectives for this class need to be collaboratively constructed by credentialed scholars of appropriate expertise. Course developers should recognize that the primary focus of the class is to recognize, respect, and properly produce great foods of the world. It should emphasize the importance of skill and craft in great cuisine and the understanding of fundamentals in the production of fine foods. Precisely *what* great foods of the Western world are studied is not left to the discretion of teachers and chefs involved with the class. Too many beginning culinarians become infatuated with the notion of "creativity" and think that great food has to be invented, that creating traditional foods is somehow cheating (because it is copying), or that it is boring. Lasagna is a great food of the world, and students should learn to prepare classic lasagna to perfection with each ingredient treated with the utmost respect and care. Students need to know a great food like this inside and out before they attempt to invent their own version; Taco-Sushi-Chocolate lasagna is NOT an improvement. Creative, perhaps; great no. Caesar salad is a great food that is consistently *destroyed* in a great many contemporary kitchens. It is made with whole leaves of Romaine lettuce, has no mayonnaise, and certainly is not improved by adding flabby and flavorless grilled chicken; it is eaten with the hands and never a fork. Students should experience this great food and many others before attempting to *create* something better.

Sociology and Psychology of Food (Classroom/Online Hybrid)

This class will introduce student to the sciences of sociology and psychology and how they attempt to understand the human condition and behavior. Everyone must eat to survive, and there are psychologists' and sociologists' studies that demonstrate emerging concerns regarding a wide array of topics, including healthy eating, too much food, too little food, symbolic meaning of foods, food safety, and in particular, obesity. Sociologists look at the relation of food in the history and development of society. They examine all human activities regarding food, from growing it to distribution to eating; they also include personal implications of food that may be cultural, ethical, or ritualistic. Food is inevitably at the intersection of gender, religion, race, and social class, and it is greatly influenced by everything from deliberate politics to social media. Psychologists study individual food habits and how they affect people's health and well-being. Students will be introduced to topics of concern including taste preferences, food aversions, eating disorders, and mental regulation of satiety and hunger.

Objectives: Upon the successful completion of the *Traditional Cuisine of Europe and Western Cultures* course, the student will:

1. Use a sociological perspective to explain how food and eating practices are can be defined as social problems and how they are culturally produced.
2. From the sociologists' perspective, describe how the study of food may be used as a way of understanding the reproduction of social inequality and how it may form our perceptions of gender, race, and privilege.
3. Explain how science and appeal to experts of authority are used and abused, both politically and socially to define what and how we eat.

4. From the viewpoint of a sociologist, write a reflection on their own food behaviors, including meal habits, food preferences, eating environments, religion, ethics, and culture.
5. Discuss the inherent power of government, institutions, and various social structures and the problems that they cause in food systems, including unequal and unfair access to food, inadequate or unfair labor injustices, and degradation of the environment.
6. Describe and explain several important psychological processes underlying humans' development of eating behaviors and the adoption of both healthy and maladaptive cognitions and behaviors concerning food.
7. Clearly distinguish and differentiate between psychological and physiological processes involved in eating, including food preferences, food choices, eating motivation, dieting behavior, eating disorders, personal body image, and weight regulation.
8. Demonstrate the ability to detect pseudoscientific and inaccurate "facts" or claims so frequently made in regard to food and counter them with empirical evidence. Discuss from a sociological and psychological viewpoint the reason that so many people are susceptible to believing pseudoscientific claims regarding food in particular more so than with other information.

* Specific objectives for this class need to be collaboratively constructed by credentialed scholars of appropriate expertise.

Advanced Food Industry Finance; Managing for Profit (Classroom/Online Hybrid with access to Kitchen Lab and Dining Room) **Prerequisite:** *Introduction to Food Industry Finance, Accounting, Purchasing and Operational Cost Control* (Classroom/Online Hybrid)

This course is designed to ensure that students understand all of the tools and procedures necessary to insure the financial validity of a food operation. This includes the concepts

of processing data and the flow of financial information in the production of typical accounting documents including an income statement, balance sheet, cash flow statement, and statement of owner equity. Cost percentage accounting statements will be emphasized. Security systems, theft prevention, and cash control will all be addressed.

Objectives: Upon the successful completion of the *Advanced Food Industry Finance; Managing for Profit* course, the student will:

1. List and explain the purpose of generally accepted accounting principles.
2. List and explain the basic steps involved in the weekend accounting process, including the completion and preparation of financial statements.
3. Describe types of business organization, such as single proprietorship, partnership, LLC, and corporations. Discuss their advantages and disadvantages.
4. Describe and explain the accounting equation, debits and credits, and account classifications.
5. Demonstrate the ability to produce, analyze, and explain income statements, statement of owner equity, inventory, balance sheet, and other important and common financial documents.
6. Discuss and describe various systems of security and cash control in the prevention of embezzlement and employee theft.
7. Demonstrate a thorough understanding of operational cost controls, including those used for food, labor, chemical supply, alcoholic beverages, and their purpose in producing profits. Show the ability to evaluate all cost controls and systems for effectiveness.
8. Demonstrate the ability to use current methodologies in the production of sales forecasts.
9. Demonstrate the ability to use sales forecasts for managerial decision making in regard to purchasing of product, production, and staffing/scheduling.

10. Define and explain true and complete labor costs, including all benefits provided and training investments.
11. Identify operational costs as fixed, variable, or semi-variable and explain their relationship to volume and profit.
12. Demonstrate formative understanding of payroll account systems and benefit packages. Describe why these functions are frequently contracted or "farmed out."
13. Demonstrate understanding of collection and delivery of taxes and fees on state, federal, and local levels.

* Specific objectives for this class need to be collaboratively constructed by credentialed scholars of appropriate expertise. Course developers and teachers should take care that the class is supposed to be demonstrably *useful* in a practical, real-world, sense. It *should not* be taught as if students might go on to eventually take a CPA examination. It *should* prepare a professional culinarian to hire, to understand, and to work with a CPA.

Exploration of Asian and World Cuisines (Kitchen Lab) **Prerequisite:** *Human Nutrition and Healthy Cooking* (Kitchen Lab)

This class should give the student ample opportunity to the major food styles, types and cuisines of the world that are not covered in the class *Traditional Cuisine of Europe and Western Cultures,* including, but not limited to, regional cuisines of China, Japan, Korea, Vietnam, India, Indonesia, Africa, the Middle East, South America, and Central America. The class will produce a series of international buffets thematically designed to be authentically and traditionally representative of specific countries or regions. Students will gain exposure to myriad of specialized and advanced cooking techniques and a wide variety of unique foods and ingredients.

Objectives: Upon the successful completion of the *Exploration of Asian and World Cuisines* (Kitchen Lab) **course, the student will:**

1. Describe and demonstrate a variety of advanced cooking techniques and methods specific to authentic world cuisines.
2. Identify, analyze, describe, and properly use a wide variety of unique foods and food ingredients.
3. Demonstrate understanding of and capability to correctly use numerous specialized knives, tools, and equipment common in the cuisines of the world, but not normally found in the professional American kitchen.
4. Demonstrate a high level of understanding of and the ability to produce very high-quality soups, stocks, broth, sauce, meat, poultry, fish, vegetables, potatoes, grains, fruits, and more.
5. Demonstrate a sound understanding of and the ability to execute all essential cooking skills and techniques to a very high standard.

* Specific objectives for this class need to be collaboratively constructed by credentialed scholars of appropriate expertise. An important underlying component of the course is that students should gain and practice a sense of adventure and excitement when exposed to new and unfamiliar foods. Students taking this class are nearing completion of their program and should behave professionally at all times. During tastings and food analysis, instructors will not tolerate toddler-like behavior or comments ("eewww . . . gross . . . it's not pizza"); only appropriate comments will be welcome ("how interesting…this is different . . . I've never tried duck blood soup before"). Choosing specific cuisines, foods,

techniques, and ingredients is up to the discretion of chef instructors and course developers.

Bar and Beverage Management and Hospitality Law (Classroom/Online Hybrid with Kitchen Lab and Dining Room access)

This course begins with the study of legal issues in the hospitality industry in general and particularly with the service of alcoholic beverages. Emphasis will be on federal and state legislated regulations, dram shop liability, and ways the manager can avoid time-consuming and expensive lawsuits. After successful completion of the National Restaurant Association ServSafe Alcohol examination, students will be introduced to all aspects of alcohol service. The class will brew beer, produce in-house infused liqueurs, and practice bartending skills. Wines of the world will be studied, and extensive tasting will assure that students are well on their way to taking a Certified Sommelier examination if they so choose.

Objectives: Upon the successful completion of the *Bar and Beverage Management and Hospitality Law* course, the student will:

1. Define and explain hospitality law, the legal process, and court systems.
2. Explain important elements of negligence in hospitality law.
3. Explain the licensing process for food business operations, including regulatory compliance and various business activities.
4. Outline the basic concepts of contract law and apply contract law to specific hospitality industry situations.
5. Successfully pass the National Restaurant Association ServSafe Alcohol examination.
6. Explain the process of yeast fermentation.

7. Explain the various steps in the brewing of beer; participate in the successful brewing of American Ale from wort to bottle.
8. Name, describe, and recognize by taste a broad spectrum of wine grape varieties.
9. Describe the history of and the techniques used in the production of a wide variety of wines. Additionally describe labeling regulations for various wine regions, their maturity and aging, and the term vintage.
10. Describe and explain the history and process of spirits and potable alcohol distillation and common distilled beverage categories.
11. Discuss important considerations for the design of alcoholic service areas and bars, including proper storage of wine, draft beer systems, pour station design, and atmosphere or décor factors.
12. Explain and demonstrate the numerous important skills of bartending, from proper beer and wine service to the mixing and serving of cocktails to juicing and customer relations.
13. Explain and demonstrate understanding of non-alcoholic beverage service, including maintenance of soda pop machines, espresso and coffee, and tea service.
14. Explain contemporary bar design, including menu design, and compare and contrast all-inclusive bars with specialty bars.

* Specific objectives for this class need to be collaboratively constructed by credentialed scholars of appropriate expertise. Course designers are challenged with this class because there is an extraordinary amount of material to cover. Care should be taken that the course does not speed along at such a pace so as to only scratch the surface of the subject material, leaving the student without any real knowledge of substance. There have traditionally been Sommeliers in fine food operations that deal with buying, storing,

selling, and serving of wines, but the field seems to be branching out. The Sommelier is being replaced with a more generalized expert, who is commonly becoming referred to as a "Bar Chef," which is an intentional elevation from bartender. This course should introduce the students to this new field and prepare those who might want to study further to specialize in this direction.

Food Entrepreneurship, Business Planning, and Menu Design (Classroom/Online Hybrid)

This course is designed to familiarize the student with the history and current practices related to food and agriculture as economic enterprises in the United States with an emphasis on end-use consumer food production. Students will develop entrepreneurial skills to create a business plan for a unique food operation of their choosing. The business plan will be thorough and professional; it is anticipated that at least some students will actually carry out their plan upon graduation.

Objectives: Upon the successful completion of the *Food Entrepreneurship, Business Planning, and Menu Design* course, the student will:

1. Develop a complete and thorough business plan that includes identification of a target market, development of a thematic marketing plan for that market, including menu design, competitive analysis of barriers of entry, compiling demographic data, developing feasibility studies, long and short-term business goals, prototype recipes and production methods, facility design with equipment needs, and budget formulation.
2. Produce a ready to print menu design that demonstrates understanding of the following:

- Matching menu items to target market patrons without alienation of secondary markets/companion patrons.
- Menu mix must distribute workload evenly for production.

- Considerations between known items and new/innovative items.
- Layout design and physical menu production factors.
- Use of descriptive terminology or "sizzling verbiage."
- Accurate pricing strategy based on standardized recipes.

* Specific objectives for this class need to be collaboratively constructed by credentialed scholars of appropriate expertise. Developers should be aware that although it is not technically or specifically designated as such, this course should have a capstone feel to it. The class should give students an opportunity to demonstrate their abilities and understanding of the culinary field gained over the course of their tenure.

Summary

Chapter 4 listed the course descriptions proposed in the certificate, associate, and bachelor degree programs. Each course description included the class title, description, learning format, and objectives, as well as suggestion notes for the course developer or instructor. The variety of classes proposed in this chapter will need additional development from a committee of subject matter experts, faculty, and administrators. The forthcoming Chapter 5 will be a discussion of my observations about this project, changes encountered, implications for practice in the real world, recommendations for further discussion, and an overall project conclusion.

CHAPTER 5: DISCUSSION AND CONCLUSION

Introduction

Chapter 5 will be a discussion of my observations about this project, changes encountered, implications for practice of my curriculum in the real world, recommendations for further discussion, and the project conclusion. This project began with little more than an intuitive sense that culinary education in the United States was stale and out of sync with the times. My thirty-plus years of experience teaching food-related fields in higher education in food indicated to me that something was either wrong with or missing from current available offerings in culinary education. Exactly what that "something" was seemed obvious to me; I would just re-write culinary curriculum, ignoring tradition and the "norms" in a way that my experience would tell me was right. However, the difficulty of defining and explaining these things to others became the obvious and apparent challenge. I was forced to consider my ideas on a deep and philosophical level. I had to start at the very beginning by trying to define what kind of education I was talking about. I had to define "culinary education" to begin with, if I was going to make a leap forward and re-define the way it is taught.

Initially "culinary education" was, in my mind, defined essentially by tradition. It was and still is the education intended to train professional chefs. Programs of this type are generally two-year associate degrees and are very vocational in nature. Culinary education is the descendant of traditional chef-apprenticeships; these programs frequently have significant "hands-on" components, such as lengthy internships in the field. In truth, these programs are designed to train highly-skilled commercial cooks who may, after years of experience, rise through the ranks to become an executive chef. This trade-school mentality was to be my first justification for new curriculum.

Here was a good start that led to the serious question of, "Is the purpose of culinary education *really* to train professional chefs?" Should it be? Within the industry, comparatively few graduates of these "culinary programs" ever ascend the ranks to become chefs. This seemed like an unreasonable goal to me; who would design a program expecting a 10% success rate for its graduates? What becomes of the other 90% of the graduates? I could not in good conscience do this. Some inquiry led to the rough conclusion that culinary program graduates may work in all sorts of related capacities without ever becoming chefs or even desiring to become chefs; they might be involved in food sales, food writing, food-based media, food education, food product development, and so on. This led me to some careful consideration of terminology. The term "chef" or "professional chef" or "executive chef" does not accurately apply to those people in the food industry. For lack of an existing term to describe them, I coined "culinary professional." A traditional chef is included as just one type of culinary professional. The term culinary professional is important, as it broadened the scope of what to include in "culinary education."

The resulting curriculum was designed to train culinary professionals *including*, but not limited to, chefs. This expansion of knowledge base is fortunate, as it coincides with and supports the movement from "trade" or "vocational" training to "liberal" and "professional" education. Finally, it was important that a new curriculum did not ignore the goals and ambitions of students who were specifically looking for training to become chefs. In other words, training to become a culinary professional should prepare students to become chefs at minimum, and should merge any existing, more traditional, culinary program with the well-rounded college education necessary to be successful in a variety of food-related jobs and fields in a fast-changing world.

It was this line of thinking that answered the "What is missing?" question in regard to current culinary education offerings. What was missing was college education; students were physically trained in a trade as a cook but were not provided with a well-rounded liberal education. They were not getting the professional polish, the ability to change and adapt, and most importantly, the ability to learn and grow purposefully within the industry. Additionally, students were not getting any education in the many aspects of food that might be important to culinary professionals who are not chefs; classes are needed in subjects like food writing, food modeling, food photography, and food travel that do not currently exist. It became clear that everything needed to train a culinary professional could not be done within the confines of a traditional two-year associate degree; the new culinary education curriculum would need to be for a bachelor's degree.

Defining this new field of "culinary professionals" and suggesting a whole new paradigm in the approach to culinary education was not to be taken lightly. Certainly, it is not necessary if the educational need is already being met by current culinary programs or by the offerings of some of the closely associated, food-related fields. A thorough internet search supported the idea that there are programs for studying food in a huge variety of different capacities that surround and touch on the "culinary professional" line of reasoning without actually embracing it. There are people studying food from the standpoint of agriculture, sustainability, supply-line management, food studies (a billowing field with seemingly few boundaries), nutrition, food science, food manufacturing, food sociology, food anthropology, traditional culinary art, restaurant management, and the list goes on. Each of these disciplines has a specific and specialized niche, a specific angle from which the topic of food is seen and studied. There are highly-specialized and well-established programs and degree offerings for all the aforementioned

fields. The "culinary professional" is a broad and unspecialized role with a general variety of skills, abilities, and knowledge in all the above well-established fields. Currently, there are no existing degrees or programs of study for the broadly-educated culinary professional. This is a true void in culinary education, and there is a need for a new paradigm and for this newly proposed curriculum to fill it.

In many ways, this curriculum project grew organically. As I was finding justification for the rather large leap to an entirely new college degree offering, I found myself looking at the importance of this culinary education beyond the individual. People who are currently or will in the future be working as culinary professionals will have an opportunity to impact American society and its eating behaviors. Eating is as complex as humanity, and while people's eating behaviors are influenced by an almost infinite number of factors, culinary professionals will be uniquely positioned at the forefront of American culture to impact our food choices and our food behaviors more than any other group of people.

With two-thirds of Americans being either overweight or obese, and healthcare costs at absurd levels, this influence can be of significant importance. People's food decisions will impact not only their health, but also our society in many other ways. I went on to make a case that our society would benefit if these influential people, these culinary professionals, had the knowledge and training to be thoughtful, informed, and well-considered disseminators of food knowledge. This idea became complex and perhaps somewhat distracting to the project. It is too riddled with controversy and misunderstanding. I engaged in a lengthy discussion of "good" versus "healthy" food in an attempt to explain why and how a culinary professional's approach to food and influence on society would be different. The point is that society can and will be influenced by culinary professionals —whether intentionally or unintentionally— and therefore,

the education those professionals receive should prepare them so that their influence can be a positive one. At this point in the project, it became clear that I was working on something much more than what I had originally started with; I was beyond a "better culinary degree" and was beyond taking a two-year degree and adding the requisite courses to make it a four-year degree. I was no longer refining culinary education in its current form; this proposed curriculum was something new entirely. The project transformed into something that was and still is very exciting.

An Observation of Change

During the course of this project, which spanned over five years, changes in culinary education have already begun and will continue to occur. Many of the concepts that I began writing about were predictions of things to come, and many of those things have now come to pass. In particular, the popularity of culinary arts as a field of study has passed. Enrollment in traditional culinary schools has tapered dramatically. It has been my observation as a chef, educator, and resident of the St. Louis metropolitan area that over the last five years, approximately half of the culinary schools in the area during that time have closed, and this reflects the national trend (Allen, 2017). Culinary program enrollment is significantly down, while the study of food in general is up; the study offered by traditional programs is no longer perceived as a value to students (Allen, 2017; Lempert, 2017). Both students and their parents want to feel like their investment in a college education will have a good and significant return on investment. Educators must be cognizant of this and ensure that offerings are relevant and that degrees are designed to prepare students for in-demand and desirable jobs.

The theme and focus for the 2018 American Culinary Federation National Convention was "Be the Change." It seems that the world of chefs and professional culinarians is changing,

and education must change along with it. Because of very strong traditions in culinary profession and in culinary education, change has always come in the form of slow evolution, and this evolution will continue as societal pressures come to bear on existing programs. Existing programs will have to adapt to survive. The new curriculum I propose, however, provides a spring board to that future; it is a blueprint for what programs will likely evolve to in perhaps 15 or 20 years, and any school that would adopt the recommendations and curriculum put forth in this paper will be well ahead and at a serious advantage.

Implications for Practice in the Real World

It was my desire to work with something tangible and practical that led to my decision to work on an Ed.D. project rather than a traditional Ph.D. research dissertation. I had hoped that in the end, this project would provide some concrete and useful insights as to how culinary educators might begin to re-think the way they teach. My goal was to develop a general conceptual framework that could easily be adapted in different settings; a research university, a land grant university, a community college, and a private culinary school can all benefit from this new curriculum. All these institutions have different needs for their own programs and students, and no one can design a one-size-fits-all culinary curriculum. If I could improve my own knowledge, thinking, understanding, and ability to develop and generate a culinary curriculum, I would be doing well. If I could influence the thinking of culinary educators other than myself, I thought that would be doing great.

In the process of developing a new curriculum to train culinary professionals, it occurred to me that one type of culinary professional might prefer some industry-specific training different than others. For example, a person who is studying to become a culinary professional who wants to be employed as a chef might want a slightly different education than a person who

wanted to be employed as a food photographer; this led me to the idea of "modular" training for culinary professionals, with areas of minor specialization within the field. For example, a culinary professional might have an area of expertise such as mobile food service, or event planning and catering, or beverage management. In addition to the certificate program, associate degree, and bachelor's degree proffered here, I designed these additional degrees to go along with it. They are enough alike that all students are trained as culinary professionals, and different enough to provide niche training that allows individual students to customize their education according to their interests. I then wrote letters explaining my ideas and the curricula to a few college presidents and other people who I thought might be interested.

The idea that much of this curriculum could and would be actualized and adopted as a new degree program by a world-class culinary program was unthinkable, but that is exactly what has happened. I was hired as Director of the Wiley Hospitality and Culinary Academy at Johnson County Community College in the Kansas City suburb of Overland Park, Kansas. I have been given oversight of all existing programs and the authority to make decisions as necessary to make the new offerings a reality. The school is housed in a brand new multimillion-dollar facility with the most state-of-the-art culinary equipment and learning environment possible. We currently have over 750 students, and we support the nation's top college culinary team with faculty who are both highly-educated and impeccably-credentialed. That top culinary team recently won the U.S. National Championship Competition and will represent the United States around the world over the course of the next year, including at the Spring 2020 Culinary Olympics in Stuttgart, Germany. These things have important implications because significant changes in culinary education and philosophy here can and will have far-reaching impact. Our

school and programs are in the limelight, and changes at this school will be noticed and likely emulated.

We will continue to offer the current associate degree in Culinary Arts, which is very traditional and involves students completing a 6,000-hour ACF Apprenticeship. We will add a culinary degree without the apprenticeship; the emphasis, as described for these new programs, will be on professional and liberal education development. We may also add a degree in culinary nutrition (the first associate degree ever to be accredited by the American Academy of Dieticians), a degree in culinary beverage management, a degree in event planning and catering, and a degree in mobile food service. As far as implications for real world practice, who could ask for anything more?

Well, in truth, I could. As excited as I was, there was a little disappointment because I had become convinced that two years was not enough time to educate a culinary professional in the way that I had come to envision and believe in; my project was to be stymied somewhat because Johnson County Community College only offers two-year degrees. For students in these new associate degree offerings to have the opportunity to continue for a bachelor's degree, they would need to transfer to a four-year school, and of course, there is no place offering anything like the rest of this curriculum. Again, either fortune is with me, or there are others who see value in this curriculum because I now have two articulation agreements with four-year institutions well underway.

I contacted the University of Kansas, which offers a degree in Hotel and Restaurant Management; this is a closely related field and a traditional transfer option for two-year culinary graduates. Upon seeing this curriculum, their department chair decided to begin a new program specifically with our transfer graduates in mind. The program will be separate from the current

program offered in Lawrence, Kansas, and it will be housed in a new facility in Olathe, Kansas, near Johnson County Community College. To date, the department chair has assigned one full-time faculty member, and although there are no students yet, my colleagues and I at Johnson County Community College have begun the process of integrating the University of Kansas curriculum with these newer ideas.

As far as implications outside of the culinary-related professions, I believe this curriculum project could serve as an excellent model for many other fields. Educators from many fields may find that starting with the assumption that their current curriculum is inadequate and in need of improvement is key. This will be a critical aspect for anyone who would want to emulate this project. The nature of a project, especially a non-academic one, is that its completion must be efficient. The most efficient way to design a new curriculum is to start with the old existing curriculum. Beginning with the assumption that the way we have always educated people in "our" field is very good, and the curriculum and methods used are best practice for good *reasons* leads to very closed-minded thinking. It leads to tradition taking hold and to a very slow evolution of curriculum. Even with the intention of developing a whole new curriculum, what is actually achieved is a tweaked version of the old curriculum. Progress in education is a very slow process when accomplished in this way, so slow that it may not keep up in a fast-paced and rapidly changing world. The gap in the culinary field and the need for this entirely new curriculum design for an entirely new field for culinary professionals was caused by this very problem. Culinary education has failed to keep pace with the "real world." A complete break from tradition and overhaul is necessary to modernize.

There are many general rules of curricular design employed throughout this project that are worthy of emulation. Of particular importance to me is the fact that this curriculum is

designed specially to accommodate students from a wide variety of backgrounds. A traditional-aged student admitted with a GED can find success in this program as much as a person who comes in with a master's level degree. The graduated and tiered degree program allows students to find success regardless of the level of skill they begin with. More important is the consistency throughout the program; it is designed so that every semester can be identical except for the course material. Each semester has a hands-on kitchen lab cooking course with a corresponding classroom, online or hybrid class component, a business class related to culinary management, and a liberal arts course with a food-based focus. Students will be able to graduate taking the exact same *type* of course, at the same scheduled time, on the same days of the week. Individual courses are and will be designed to have similarity; every course will have a midterm exam and final practical exam. Each course will have an online reading and assignment component that closely corresponds with the hands-on kitchen lab activities. Once a student has completed their first semester, each successive semester is scheduled to be similar. My hope is that this attention to similarity and consistency in the courses and throughout the program will help retention in a field where many students fail to graduate. Once students have success, they can begin see that their success is replicable, and that they can do that four additional times and get an associate's degree. Once the associate degree is achieved, hopefully they can realize that with just four more times, they'd have a bachelor's degree. I believe that the level of comfort and confidence built by this tiered system will help with retention in fields where students frequently don't like school. People who don't like school often have very little experience as a successful student; a program built for success should lead to students enjoying school more and being more likely to graduate.

Recommendations for Future Research

Right now, the proposed curriculum I have put forward has actually been accepted for implementation at a renowned culinary program at Johnson County Community College. It will be important to track students' progression, monitor graduation rates, and even look at career success. I have made what I believe is a strong case for professional culinarians to have a bachelor's degree. This would apply to chefs who are one type of culinary professional. Will a greater number of students who begin culinary programs graduate? Will a larger percentage of students pursue higher degrees than previously? Will graduates with bachelor's degrees have better success compared to those with certificates or associate degrees? What about the "other" culinary professionals who do not seek to become chefs; are they better prepared for the myriad of jobs they may choose or encounter? All these questions remain unanswered.

Further study and thought also needs to be given to the notion of this new thing I have contrived, the Culinary Professional. An in-depth and comprehensive study of culinary program graduates could be invaluable in developing and shaping curriculum in a new field like this one. Future studies could attempt to answer many questions regarding program quality, retention, and the resultant success of graduates. Success as a Culinary Professional can be measured in so many ways, including salary, highest level of completed education, achievement of career goals, level of happiness, and satisfaction in life. This proposed curriculum has been designed with all of these different kinds of success in mind, in part by carefully blending vocational, job-specific training with professional, liberal education.

Conclusion

I think that to have a project that is designed as an educational experience actually become reality is probably very rare. Having the opportunity to put this work into practice is an

honor and a thrill. That this project and proposed curriculum have led directly to my career advancement was a never-to-be-expected bonus. Equally, if not more important, is that the project was a success from the standpoint of a learning experience; it has led to a great deal of personal development and growth for me, clarified my thinking, and helped me to become a more deeply dedicated and philosophical educator. Trying to express ideas peculiar or unique to the culinary fields to scholars of different backgrounds was a tremendous challenge. Having to support and explain the curriculum and the decision-making process used in designing it caused me to carefully consider things from many angles. Writing curriculum in a certain way just because one knows it is right, based upon my experience in the culinary industry, is important; however, experience is not good enough and proposed ideas need justification. In the end, the only truly acceptable justification is the success of students. Only when we begin to truly scrutinize curriculum, to examine each small fragment in terms of students' future success, can we truly move education forward in any given field. Educators may never agree on how to solve the apparent disparity between an education meant to develop a well-rounded and liberal arts educated citizen, and an education to provide a student with a marketable skill to earn a living. In my opinion, this proposed new curriculum design does both and without compromise, by delivering the "marketable skills" component in such a way that leads to the overall educational betterment of the citizen. This "liberal" component is woven throughout the fabric of the program. It frequently comes as incidental learning, but layer-upon-layer, semester-after-semester, the graduate will learn the skills of the professional culinarian, and also have the adaptability, poise, and polish that comes from being an educated college graduate.

REFERENCES

Aberle, E. D., Forrest, J. C., Gerrard, D. E., Mills, E. W., Hedrick, H. B., Judge, M. D., & Merkel, R. A. (2001). *Principles of Meat Science.* (4th ed.). Dubuque, IA: Kendall Hunt Publishing Company.

Allen, S. (2017, January 29). "Culinary Schools Struggle with Falling Enrollment." *The Detroit News*. Retrieved from https://www.detroitnews.com/story/news/nation/2017/01/29/culinary-school/97225048/

American Culinary Federation. (2005). *Culinary Fundamentals.* Upper Saddle River, NJ: Prentice Hall.

American Culinary Federation. (2017). "2017 Certified Master Chef® Exam." Retrieved from https://www.acfchefs.org/ACF/Certify/Levels/CMC/2017CMCExam/ACF/Certify/Levels/CMC/2017/

American Culinary Federation. (2017). *Certified Executive Chef® Candidate Handbook.* Retrived from http://www.acfchefs.org/download/documents/certify/certification/candidate_handbook_cec.pdf

American Culinary Federation. (2017). "Who We Are." Retrieved March 26, 2018, from https://www.acfchefs.org/ACF/About/Overview/ACF/About/Overview/

Anderson, L.W., Krathwohl, D.R., Airasian, P.W., Cruikshank, K.A., Mayer, R.E., Pintrich, P.R., Raths, J., Wittrock, M.C. (2001). *A Taxonomy for Learning, Teaching, and Assessing: A revision of Bloom's Taxonomy of Educational Objectives.* New York, NY: Pearson, Allyn & Bacon.

Aubrey, A., & Godoy, M. (2016, August 03). "75 Percent of Americans Say They Eat Healthy - Despite Evidence To The Contrary." Retrieved from https://www.npr.org/sections/thesalt/2016/08/03/487640479/75-percent-of-americans-say-they-eat-healthy-despite-evidence-to-the-contrary

Beardsley, E. (2017, November 27). "Sacré Beurre: France Faces A Butter Shortage." Retrieved from https://www.npr.org/sections/thesalt/2017/11/27/566361607/sacr-beurre-france-faces-a-butter-shortage

Bellman, A. (2004, March 2). "Ready, steady, look." Retrieved from https://www.theage.com.au/articles/2004/03/01/1077989479310.html

Ben and Jerry's. (n.d.). "Our History." Retrieved from https://www.benjerry.com/about-us

Bialik, C. (2010, September 4). "Seven Careers in a Lifetime? Think Twice, Researchers Say." *Forbes*. Retrieved from https://www.google.com/search?q=Carl Bialik and "Seven Careers in a Lifetime?"&oq=Carl Bialik and "Seven Careers in a Lifetime?"&aqs=chrome..69i57.9833j0j8&sourceid=chrome&ie=UTF-8#

Blake, A., & Crewe, Q. (1978). *Great Chefs of France: The Masters of Haute Cuisine and Their Secrets* (1st ed.). New York, NY: H. N. Abrams.

Bloom, B.S., Engelhart, M.D., Furst, E.J., Hill, W.H., & Krathwohl, R. (1956). *Taxonomy of Educational Objectives. The Classification of Educational Goals, Handbook I: Cognitive Domain*. New York: David McKay Company, Inc.

Bloom, B.S. (1965). *Taxonomy of Educational Objectives: The Classification of Educational Goals*. New York: David McKay Company, Inc.

Boakes, R. A., Popplewell, D. A., & Burton, M. J. (1987). *Eating Habits: Food Physiology and Learned Behavior*. (1st ed.). Hoboken, NJ: Wiley.

Bourdain, A. (2000). *Kitchen Confidential: Adventures in the Culinary Underbelly*. New York, NY: Bloomsbury USA.

Brefere, L. M., Drummond, K. E., & Barnes, B. (2005). *So You Want To Be A Chef?: Your Guide to Culinary Careers* (1st ed.). Hoboken, NJ: John Wiley & Sons.

Bureau of Labor Statistics. (2018, April 13). "What Agricultural and Food Scientists Do." In *Occupational Outlook Handbook.* Retrieved from https://www.bls.gov/ooh/life-physical-and-social-science/agricultural-and-food-scientists.htm#tab-2

Cannon, P.R. (1961). "Why We Have A Safe and Wholesome Food Supply." *American Journal of Public Health, (53)*4: 626-630. Retrieved from https://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.53.4.626

Centers for Disease Control and Prevention. (2015, June 5). "The Health Effects of Overweight and Obesity." Retrieved from https://www.cdc.gov/healthyweight/effects/index.html

Centers for Disease Control and Prevention. (2016, June 16). "Defining Adult Overweight and Obesity." Retrieved from https://www.cdc.gov/obesity/adult/defining.html

Centers for Disease Control and Prevention. (2018, March 5). "Adult Obesity Causes and Consequences." Retrieved from https://www.cdc.gov/obesity/adult/causes.html

Chefs Resources Inc. (2018). "Modern Kitchen Brigade System." Retrieved from http://www.chefs-resources.com/kitchen-management-tools/kitchen-management-alley/modern-kitchen-brigade-system/

Coff, C. (2006). *The taste for ethics. An ethic of food consumption*. Dordrecht, The Netherlands: Springer.

Colasanti, K., Cantrell, P., Cocciarelli, S., Collier, A., Edison, T., Doss, J., George, V., Hamm, M., Lewis, R., Matts, C., McClendon, B., Rabaut, C., Schmidt, S., Satchell, I., Scott, A., Smalley, S. (2010). *Michigan Good Food Charter*. East Lansing, MI: C.S. Mott Group for Sustainable Food Systems at Michigan State University, Food Bank Council of Michigan, Michigan Food Policy Council. Retrived from http://www.michiganfood.org/uploads/files/Charter.pdf

Contois, E. (2017, March 1). "From the Editor: Defining Food Studies and the Next Four Years." *Graduate Journal of Food Studies*, *4*(1). Retrieved from https://gradfoodstudies.org/2017/03/01/from-the-editor-defining-food-studies-and-the-next-four-years/

Cotgrave, R. (1611). *A Dictionarie of French and English Tongues*. London, England: Adam Iflip. In B. Fabian, E. Mertner, K. Schneider, M. Spevack (Eds.), (1970). *Anglistica & Americana*. Hildesheim, Germany: Georg Olms Verlag. Retrieved from http://www.pbm.com/~lindahl/cotgrave/all.pdf

DataUSA. (n.d.). "Culinary Arts & Chef Training". Retrieved from https://datausa.io/profile/cip/120503/

De Lorgeril, M., Salen, P., Paillard, F., Laporte, F., Boucher, F., de Leiris, J. (2002, June 1). "Mediterranean diet and the French paradox: Two distinct biogeographic concepts for one consolidated scientific theory on the role of nutrition in coronary heart disease." *Cardiovascular Research*, *(54)*3: 503–515. Retrieved from https://doi.org/10.1016/S0008-6363(01)00545-4

Dewey, J. (1916/2002). *Democracy and education: An introduction to the philosophy of education.* New York, NY: Macmillan.

Dewey, J. (1937, January). “President Hutchins' Proposals To Remake Higher Education.” *The Social Frontier, 3*(22), 103-104. Retrieved from http://www.ditext.com/dewey/dewey2.html

Dornenburg, A., & Page, K. (1996). *Culinary Artistry* (1st ed.). New York, NY: John Wiley & Sons.

Engle, J., Bermeo, A., & O'Brien, C. (2006). *Straight From The Source: What Works for First-Generation College Students* (pp. 6-7, Rep.). Washington, D.C.: The Pell Institute for the Study of Opportunity in Higher Education. (ERIC Document Reproduction Service No. ED501693).

Ehrlich, T. (1997). “Dewey versus Hutchins: The Next Round.” In R. Orrill (Ed). *Education and democracy: re-imagining liberal learning in America* (pp. 120-126). New York, NY: College Entrance Examination Board.

Escoffier, A. G. (1903). *Le Guide Culinaire, Aide-mémoire de cuisine pratique* (in French). Paris, France: Émile Colin, Imprimerie de Lagny. [Trans. anon./author.]. Escoffier, A.G. (1907). *A Guide to Modern Cookery*. London, England: William Heinemann.

Escoffier, M. R. (1987). “The Chef in Society: Origins and Development.” *Hospitality Review, 5* (1), 50-51. Retrieved from http://digitalcommons.fiu.edu/hospitalityreview/vol5/iss1/6

Ferrières, J. (2004). “The French paradox: lessons for other countries.” *Heart, 90*(1), 107–111. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1768013/

Fink, L. D. (2005, August). “A Self-Directed Guide to Designing Courses for Significant Learning.” Retrieved from https://www.bu.edu/sph/files/2014/03/www.deefinkandassociates.com_GuidetoCourseDesignAug05.pdf

Fink, L. D. (2013). *Creating Significant Learning Experiences* (2nd ed.). San Francisco, CA: Jossey-Bass.

FOOD. (2017, August). "French people eat less and less fruits and vegetables." Retrieved from http://blog.food-programme.eu/blog/uncategorized/french-people-eat-less-and-less-fruits-and-vegetables/

Food Safety Inspection Service. (2012, April). "Food Safety Information - Inspection & Grading of Meat and Poultry: What Are the Differences?" Retrieved from https://www.fsis.usda.gov/wps/wcm/connect/5d43763f-a9aa-459b-94e0-cdf9e3543923/Inspection_and_Grading_What_Are_the_Differences.pdf?MOD=AJPERES

Francis, E. (2016). "What EXACTLY Is Depth of Knowledge? (Hint: It's NOT a Wheel!)" [Web log post]. Retrieved from http://edge.ascd.org/blogpost/what-exactly-is-depth-of-knowledge-hint-its-not-a-wheel

Funk, C., & Kennedy, B. (2016, December 01). "The New Food Fights: U.S. Public Divides Over Food Science." Retrieved from http://www.pewinternet.org/2016/12/01/the-new-food-fights/

Giammona, C. (2017, March 28). "Americans Are Obsessed With Eating Healthy—and With Twinkies". Retrieved from https://www.bloomberg.com/news/articles/2017-03-28/twinkies-are-riding-america-s-healthy-eating-trend-no-really

Harasim, L. (2017). *Learning theory and online technologies* (2nd ed.). New York, NY: Routledge.

Hegarty, J.A. (2011). "Achieving Excellence by Means of Critical Reflection and Cultural Imagination in Culinary Arts and Gastronomy Education," *Journal of Culinary Science & Technology*, 9:2, 55-65. doi: 10.1080/15428052.2011.580705

Henningsson, M.F. (2016, November 25). "Food Studies." Retrieved from https://www.sbs.su.se/english/research/research-sections/nordic-association-for-food-studies/food-studies

Hersh, R. H. (March/April 1997). "Intentions and Perceptions: A National Survey of Public Attitudes Toward Liberal Arts Education." *Change,* 16-23. Retrieved from https://www.tandfonline.com/doi/abs/10.1080/00091389709603100?journalCode=vchn20.

HigherEdJobs. (2018). "Adjunct Professor—Culinary Arts: Baking & Pastry Arts." Retrieved from https://www.higheredjobs.com/search/details.cfm?JobCode=176298690&Title=Adjunct%20Professor%20-%20Culinary%20Arts%3A%20Baking%20%26%20Pastry%20Arts

HigherEdJobs. (2018). "Culinary Arts Management Adjunct Assistant Professor." Retrieved from https://www.higheredjobs.com/search/details.cfm?JobCode=176413604&Title=Culinary Arts Management Adjunct Assistant Professor

HigherEdJobs. (2018). "Curriculum & Instruction—Assistant/Associate Professor - 047501." Retrieved from https://www.higheredjobs.com/search/details.cfm?JobCode=176626125

Hruby, A., & Hu, F. B. (2015). "The Epidemiology of Obesity: A Big Picture." *PharmacoEconomics*, *33*(7), 673. doi: 10.1007/s40273-014-0243-x

Hutchins, R.M. (1936). *The Higher Learning in America.* New Haven, CT: Yale University Press.

International Conference on the Future of Education, n.d. 4th edition. "Radical Accommodation: Course Design for Extreme Access to Education." Julie A. Zaloudek University of Wisconsin)

International Food Information Council Foundation. (2017, September 22). "2017 Food and Health Survey: A Healthy Perspective: Understanding American Food Values." Retrieved from http://www.foodinsight.org/sites/default/files/2017_Food_and_Health_Survey_-_Final_Report-rev.pdf

Jones, G. S. (2014, June 6). "Escoffier Kitchen Brigade System Then and Now." Retrieved from https://www.reluctantgourmet.com/escoffier-kitchen-brigade-system/

Labensky, S. R., & Hause, A. M. (2002). *On Cooking: A Textbook of Culinary Fundamentals.* (3rd Ed.). Upper Saddle River, NJ: Prentice Hall.

Lattuca, L.R. & Stark, J. (2009). *Shaping the College Curriculum: Academic Plans in Context.* (2nd Ed.). Hoboken, NJ: John Wiley & Sons

Law, M. & Wald, N. (1999, May 29). "Why heart disease mortality is low in France: the time lag explanation." *British Medical Journal, 318*:1471–1480. doi: https://doi.org/10.1136/bmj.318.7196.1471

Lempert, P. (2017, December 13). "10 Food Trends That Will Shape 2018. Forbes." Retrieved from https://www.forbes.com/sites/phillempert/2017/12/13/10-food-trends-that-will-shape-2018/#2e08e5364104

Les Amis d'Escoffier Society of New York. (2018). “An Escoffier Biography.” Retrieved from http://www.escoffier-society.com/biography.php

Levi, J., Segal, L. M., & Salay, R. (2012, January). “Issue Brief: Bending the Obesity Cost Curve. Trust for America’s Health.” Retrieved from http://healthyamericans.org/assets/files/TFAH 2012ObesityBrief06.pdf

Los Angeles Food Policy Council. (2018). “What is Good Food?” Retrieved from http://goodfoodla.org/good-food/what-is-good-food/

Lynch, S. L. (1988, January 27). “Ben and Jerry's founders cite Penn State connection.” Retrieved http://www.collegian.psu.edu/archives/article_ae02ee7b-a3ee-5aea-a6dd-f0c947f4cd98.html

Mager, R. F. (1997). *Making Instruction Work: Or Skillbloomers: A Step-By-Step Guide to Designing and Developing Instruction That Works* (2nd ed.). Atlanta, GA: The Center for Effective Performance.

Mager, R. F. (1997). *Preparing Instructional Objectives: A Critical Tool in the Development of Effective Instruction* (3ed ed.). Atlanta, GA: The Center for Effective Performance.

MedicineNet, Inc. (2012). “Medical Definition of French Paradox”. Retrieved from https://www.medicinenet.com/script/main/art.asp?articlekey=25931#heart_cardiovascular_disease_definition_and_facts

Mela, D. (1999). “Food choice and intake: The human factor.” *Proceedings of the Nutrition Society, 58*(3), 513-521. doi:10.1017/S0029665199000683.

Merriam-Webster, Incorporated. (2018). Apprentice [Def. 1 b]. In “Definition of Apprentice.” Retrieved from https://www.merriam-webster.com/dictionary/apprentice

Merriam-Webster, Incorporated. (2018). Chef [Def. 1]. In "Definition of Chef." Retrieved from https://www.merriam-webster.com/dictionary/chef

Merriam-Webster, Incorporated. (2018). Connoisseur [Def. 1, 2]. In "Definition of Connoisseur." Retrieved from https://www.merriam-webster.com/dictionary/connoisseur

Merriam-Webster, Incorporated. (2018). Craft [Def. 2a]. In "Definition of Craft." Retrieved from https://www.merriam-webster.com/dictionary/craft

Merriam-Webster, Incorporated. (2018). Culinarian. In "Definition of Culinarian." Retrieved from https://www.merriam-webster.com/dictionary/culinarian

Merriam-Webster, Incorporated. (2018). Dietician. In "Definition of Dietician." Retrieved from https://www.merriam-webster.com/dictionary/dietician

Merriam-Webster, Incorporated. (2018). Dietetics. In "Definition of Dietetics." Retrieved from https://www.merriam-webster.com/dictionary/dietetics

Merriam-Webster, Incorporated. (2018). Gastronomy. In "Definition of Gastronomy." Retrieved from https://www.merriam-webster.com/dictionary/gastronomy

Merriam-Webster, Incorporated. (2018). Gourmet. In "Definition of Gourmet." Retrieved from https://www.merriam-webster.com/dictionary/gourmet

Merriam-Webster, Incorporated. (2018). Literature [Def. 3 a 1]. In "Definition of Literature." Retrieved from https://www.merriam-webster.com/dictionary/literature

Merriam-Webster, Incorporated. (2018). Nutritionist. In "Definition of Nutritionist." Retrieved from https://www.merriam-webster.com/dictionary/nutritionist

Merriam-Webster, Incorporated. (2018). Origin and Etymology of CHEF. In "Definition of Chef." Retrieved from https://www.merriam-webster.com/dictionary/chef?utm_campaign=sd&utm_medium=serp&utm_source=jsond

Merriam-Webster, Incorporated. (2018). Profession [Def. 4 a, 4 b, 4 c]. In "Definition of Profession." Retrieved from https://www.merriam-webster.com/dictionary/profession

Merriam-Webster, Incorporated. (2018). Safe [Def. 3]. In "Definition of Safe for Students." Retrieved from https://www.merriam-webster.com/dictionary/safe

Merriam-Webster, Incorporated. (2018). Specialist [Def. 1]. In "Definition of Specialist." Retrieved from https://www.merriam-webster.com/dictionary/specialist

Merriam-Webster, Incorporated. (2018). Trade [Def. 3 a, 3 b, 3 c]. In "Definition of Trade." Retrieved from https://www.merriam-webster.com/dictionary/trade?utm_campaign=sd&utm_medium=serp&utm_source=jsnld

Merriam-Webster, Incorporated. (2018). Wholesome [Def. 2, 4b]. In "Definition of Wholesome." Retrieved from https://www.merriam-webster.com/dictionary/wholesome

McGee, H. (2004). *On Food and Cooking: The Science and Lore of the Kitchen.* New York, NY: Scribner.

Murray, S. (2007, November 15). "The World's Biggest Industry. "*Forbes*. Retrieved from https://www.forbes.com/2007/11/11/growth-agriculture-business-forbeslife-food07-cx_sm_1113bigfood.html#6e76040b373e

Myhrvold, N., Young, C. & Bilet, M. (2011). *Modernist Cuisine: The Art and Science of Cooking* (Vols. 1-6). Bellevue, WA: The Cooking Lab.

National Academy of Sciences. (1998). "Ensuring Safe Food from Production to Consumption." (Report from the Committee to Ensure Safe Food from Production to Consumption, the Institute of Medicine, and the National Research Council). Washington, DC: National Academies Press. Retrieved from https://www.ncbi.nlm.nih.gov/books/NBK209115/pdf/Bookshelf_NBK209115.pdf

National Center for Chronic Disease Prevention and Health Promotion. (2017, November 28). "Heart Disease Facts." Retrieved from https://www.cdc.gov/heartdisease/facts.htm

National Center for Chronic Disease Prevention and Health Promotion. (2017, August 23). "Heart Disease Fact Sheet." Retrieved from http://www.cdc.gov/dhdsp/data_statistics/fact_sheets/fs_heart_disease.htm

National Center for Health Statistics. (2013). *Health, United States, 2012: With Special Feature on Emergency Care*. Hyattsville, MD. Retrieved from https://www.cdc.gov/nchs/data/hus/hus12.pdf

National Center for Health Statistics. (2017). *Health, United States, 2016: With Chartbook on Long-term Trends in Health*. Hyattsville, MD. Retrieved from https://www.cdc.gov/nchs/data/hus/hus16.pdf#053

Nordström, K., Coff, C., Jönsson, H., Nordenfelt, L., & Görman, U. (2013). "Food and health: individual, cultural, or scientific matters?" *Genes & Nutrition*, *8*(4), 357–363. Retrieved from http://doi.org/10.1007/s12263-013-0336-8

OECD. (2017). *2017 Obesity Update.* Retrieved from http://www.oecd.org/health/health-systems/Obesity-Update-2017.pdf

Office of Education. (1964, November 30). "The Vocational Education Act of 1963." Retrieved from https://eric.ed.gov/?id=ED019402

Pascarella, E.T., & Terenzini, P.T. (2005). *How college affects students, volume 2, a third decade of research.* San Francisco, CA: Jossey-Bass.

Pannoni, A. (2015, February 6). "4 Ways Community College Life Differs from the 4 Year College Experience." Retrieved from https://www.usnews.com/education/community-

colleges/articles/2015/08/26/4-ways-community-college-life-differs-from-the-4-year-college-experience

Peterson's LLC. (2018). "School Results." Retrieved from https://www.petersons.com/search/schools? searchType=12&searchTerm=culinary

Pollan, M. (2008). *In Defense of Food: An Eater's Manifesto*. New York, NY: The Penguin Press.

Pope, L., Latimer, L. & Wansink, B. (2015, March). "Viewers vs. Doers. The relationship between watching food television and BMI." *Appetite*, *90*. doi: 10.1016/j.appet.2015.02.035.

Posner, G. J. (1995). *Analyzing the Curriculum* (2nd ed.). New York, NY: McGraw-Hill.

Ranhofer, C. (1894). *The Epicurean: A Complete Treatise of Analytical and Practical Studies on the Culinary Art Including Table and Wine Service, How to Prepare and Cook Dishes, an Index for Marketing, a Great Variety of Bills of Fare for Breakfasts, Luncheons, Dinners, Suppers, Ambigus, Buffets, etc., and a Selection of Interesting Bills of Fare of Delmonico's, from 1862 to 1894. Making a Franco-American Culinary Encyclopedia.* New York, NY: Charles Ranhofer, Publisher.

Root, W., & Rochemont, R. D. (1976). *Eating in America: A History* (1st ed.). Hopewell, NJ: Ecco Press.

Ruhlman, M. (2017). *Grocery: The Buying and Selling of Food in America.* New York, NY: Henry N. Abrams.

Schiro, M. S. (2013). *Curriculum Theory: Conflicting Visions and Enduring Concerns*. (2nd ed.). Los Angeles, CA: SAGE.

Sudermann, D. P. (1992). *Toward a definition of Core Curriculum*. Manuscript submitted for publication, ERIC, Northfield, MN. Retrieved from https://archive.org/stream/ERIC_ED351951#page/n0/mode/2up

TechTarget. (2009-2018). Definition "Centers for Disease Control and Prevention (CDC)." Retrieved from https://searchhealthit.techtarget.com/definition/Centers-for-Disease-Control-and-Prevention-CDC

Telegraph Media Group Limited. (2012, February 8). "Chocolate cake breakfast could help you lose weight." Retrieved from https://www.telegraph.co.uk/news/health/news/9069276/Chocolate-cake-breakfast-could-help-you-lose-weight.html

The Chronicle of Higher Education. (2018). "FT Professor - Culinary Arts at Collin County Community College District." Retrieved from https://chroniclevitae.com/jobs/247834-3187

The Culinary Institute of America. (2018). "Our Story: A History of the CIA." Retrieved from https://www.ciachef.edu/our-story/

The Culinary Institute of America. (2006). *The Professional Chef* (8th ed.). Hoboken, NJ: John Wiley & Sons.

The Hartman Group, Inc. (2015). *Culture of Food 2015: A Nationally Syndicated Report by the Hartman Group*. Belleview, WA: The Hartman Group, Inc.

The New York Times. (1915, March 22). "Obituary: F. W. Taylor, Expert in Efficiency, Dies." *The New York Times*. Retrieved from https://archive.nytimes.com/www.nytimes.com/learning/general/onthisday/bday/0320.html?scp=63&sq=taylor&st=Search

The President and Fellows of Harvard College. (1945). *General Education in a Free Society: Report of the Harvard Committee*. Cambridge, MA: Harvard University Press. Retrieved from https://archive.org/details/generaleducation032440mbp.

The World Bank Group. (2018). "GDP (current $US)." Retrieved from https://data.worldbank.org/indicator/NY.GDP.MKTP.CD

Thomas, L. (1967). *Delmonico's: A Century of Splendor*. Boston, MA: Houghton Mifflin.

Tilmont, L. (2013, March 29). "The Secret Ingredients That Make Taillevent the Ultimate French Restaurant." Retrieved from https://www.worldcrunch.com/culture-society/the-secret-ingredients-that-make-taillevent-the-ultimate-french-restaurant

Troy, E., & CulinaryLore. (2012, October 5). "What is the Origin of the Words Culinary and Cuisine? Also, What is Haute Cuisine and Nouvelle Cuisine?" Retrieved from http://www.culinarylore.com/food-history:culinary-cuisine-haute-and-nouvelle

Tschumi, G. (1954). *Royal chef: Recollections of life in royal households from Queen Victoria to Queen Mary* (1st ed.). London, England: Kimber.

U.S. Bureau of Labor Statistics. (2018, January 30). "Occupational Outlook Handbook: Chefs and Head Cooks." Retrieved from https://www.bls.gov/ooh/food-preparation-and-serving/chefs-and-head-cooks.htm

U.S. Department of Education. (2018). "Perkins Act." Retrieved from http://cte.ed.gov/legislation/about-perkins-iv

U.S. Department of Health and Human Services and U.S. Department of Agriculture. (2015, December). *2015–2020 Dietary Guidelines for Americans*. (8th ed.). Retrieved from https://health.gov/dietaryguidelines/2015/resources/2015-2020_Dietary_Guidelines.pdf

U.S. Department of Health and Human Services. (1998). *Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults* (NIH Publication No. 98-4083). Retrieved from https://www.nhlbi.nih.gov/files/docs/guidelines/ob_gdlns.pdf

U.S. Department of Health and Human Services and U.S. Department of Agriculture. (2015, December). *2015–2020 Dietary Guidelines for Americans.* (8th Ed.). Retrieved from http://health.gov/dietaryguidelines/2015/guidelines/

U.S. National Archives & Records Administration. (2018). "Servicemens Readjustment Act (1944)." Retrieved from https://www.ourdocuments.gov/print_friendly.php?flash=false&page=&doc=76&title=Servicemens Readjustment Act (1944)

United States Department of Agriculture Economic Research Service. (2018, March 27). "Food Expenditures." Retrieved from https://www.ers.usda.gov/data-products/food-expenditures.aspx

W.K. Kellogg Foundation. (n.d.). "Food Community." Retrieved from https://www.wkkf.org/what-we-do/healthy-kids/food-and-community

Wansink, B. (2007). *Mindless eating: Why we eat more than we think.* New York, NY: Bantam Books.

Webb, N. L. (2002, March 28). "Depth-of-Knowledge Levels for Four Content Areas." Retrieved from http://www.hed.state.nm.us/uploads/files/ABE/Policies/depth_of_knowledge_guide_for_all_subject_areas.pdf

Webley, K. (2011, July 27). “Dreams: Are Cooking Schools a Rip-Off?” Retrieved from http://content.time.com/time/nation/article/0,8599,2085467,00.html

Whitaker, J. (2010, July 6). “A chef’s life: Charles Ranhöfer” [Web log post]. Retrieved from https://restaurant-ingthroughhistory.com/2010/07/06/a-chefs-life-charles-ranhofer/

WHO. (2018, February 16). “World Health Organization Obesity and Overweight Key Facts.” Retrieved from http://www.who.int/en/news-room/fact-sheets/detail/obesity-and-overweight

Wolpert, S. (2007, April 3). “Dieting does not work, UCLA researchers report.” Retrieved from http://newsroom.ucla.edu/releases/Dieting-Does-Not-Work-UCLA-Researchers-7832

Woolston, C. (2018, January 20). “Obesity and Heart Disease.” Retrieved from https://consumer.healthday.com/encyclopedia/heart-health-22/misc-stroke-related-heart-news-360/obesity-and-heart-disease-644588.html

Zelman, K. M. (2005). “Why We Eat the Foods We Do.” Retrieved from https://www.webmd.com/diet/features/why-we-eat-the-foods-we-do#1

VITA AUCTORIS

Michael Milster is currently Director of the Wylie Hospitality and Culinary Academy at Johnson County Community College in Overland Park, Kansas. Milster has over 25 years' university teaching experience, having taught culinary arts, restaurant management, wine making, and nutrition classes since 1995.

Milster has over thirty years of professional culinary experience as a restaurant owner and as an executive chef in fine dining restaurants, exclusive country clubs, and upscale full-service hotels. He holds the following professional certifications from the American Culinary Federation: Certified Executive Chef, Certified Culinary Administrator, and Certified Culinary Educator. Additionally, from the National Restaurant Association, Milster holds the following certifications: Certified Food and Beverage Executive, Certified Hospitality Educator, and Certified Proctor/Instructor for the ServSafe Food Safety Program. In food safety and processing, he has a Certificate in Process Control from the Food Science Department at Purdue University (relevant to the processing of low acid and/or acidified food) and a Certificate in Hazard Analysis of Critical Control Points (HACCP) from Sullivan University.

Milster's education includes three undergraduate degrees in culinary and restaurant management and a Master of Science in Sustainability from Saint Louis University. He is currently in pursuit of a Doctorate of Education in Curriculum and Instruction.