Escondido Union High School District

Culinary Arts & Food Science

EUHSD Board Approval Date: 6/21/16
The EUHSD **Culinary Arts & Food Science** curriculum document identifies what students should be able to know by grade level in a comprehensive standards-based course of study. The course is the first in a series of Food Service and Hospitality pathway courses designed to meet college and career expectations in the pathway and industry sector. The EUHSD curriculum document contains the following documents and/or information:

- A. Course Description
- B. Course Guidelines/Requirements - graduation credit information, transcript information, adopted materials, adopted technology, assessment outline
- C. Instructional Materials References
- D. Scope and Sequence Map with Essential Standards outlined by Unit
- E. References to key essential design and implementation documents

A comprehensive course of study and/or program is designed so that all students have access to the rigorous curriculum necessary to graduate high school demonstrating college and career readiness skills. Student-Centered learning provides opportunity for collaboration, communication, and a robust learning environment and provides opportunities for all students to meet the goals of the district’s Instructional Focus at the time of this writing: “All students communicate their thinking, ideas and understanding by effectively using oral, written and/or non-verbal expression.”

A key design consideration in the transition to the new California State Standards is a focus on changes to pedagogy. The English Language Arts instructional shifts guide classroom teaching and learning and the foundation of curriculum and instructional design. Key considerations of the ELA Instructional shifts can be found by visiting the following URL: [http://www.corestandards.org/other-resources/key-shifts-in-english-language-arts/](http://www.corestandards.org/other-resources/key-shifts-in-english-language-arts/)

The curriculum document is aligned to the California State Standards for Culinary Arts & Food Science and serves to support outcomes evidenced in the College and Career Readiness Standards.


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Dr. Courtney Goode, Assistant Superintendent of Human Resources, Equity and Title IX Compliance Officer
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**Culinary Arts & Food Science Course Description**

*Culinary Arts & Food Science* is a yearlong comprehensive lab-based foods and nutrition course. Students will learn how to make healthy and nutritious food choices reflecting the most current nutritional guidelines. Students will learn how to plan and safely prepare food in a hands-on lab-based kitchen setting. Students will acquire the basic facts regarding food borne microorganisms and food safety. Students will study the science and technological impact of food choice and nutrition. The course will emphasize the science of food including examples such as the Ph Scale, chemical hazards in fish, denatured protein, fermentation and yeast, Millard reaction, osmosis, and the chemical reaction of quick bread. Students will learn life skills; integrate academic learning and examine the vast career opportunities in the food and hospitality industries. The course focuses on CTE Pathway Standards – those that reflect the essential knowledge and skills students are expected to master to be successful in the Food Service and Hospitality Industry Sector.

**Culinary Arts & Food Science Course Requirements**

| Course Length: | One Year |
| Grade Level: | 9-12 |
| UC/CSU Requirement: | Approved as UC “g” requirement |
| Graduation Requirement: | Meets EUHSD Board Approval for CTE or Elective Credit |
| Course Numbers (Semester A): | 3514 |
| Transcript Abbreviation (Semester A): | CUL ARTS & FD SCI A |
| Course Numbers (Semester B): | 3515 |
| Transcript Abbreviation (Semester B): | CUL ARTS & FD SCI B |
| Credits | 5 per semester |
| Required Prerequisite/s: | None |
| Board Approval Date (Curriculum): | 6/21/16 |
| Board Approval Date (Materials): | updated 4/1/22 |
| Board Approval Date (Materials): | updated 4/1/22 |
| Core Instructional Material/s: | • This course uses a set high quality Open Educational Resources (OERs) in order to access current digital libraries that are pivoting rapidly to industry needs. |
| Supplemental Instructional Material/s: | • Each unit of instruction outlines a variety of instructional resources designed to meet the objectives of the unit. |
| Technology Resource/ | • Chromebooks or access to a computer lab |
| Assessment/s: | See the scope and sequence for specific assessments, as outlined within each unit of study. |
| Meeting the Needs of ELs: | Instructional leaders and teachers utilize the student information system to acquire the language levels of EUHSD English Learners. In 2012, the CA Department of Education adopted new language level proficiency descriptors and new EL state standards. Visit the following website to learn more about those new descriptors and corresponding standards: [http://www.cde.ca.gov/sp/el/er/documents/eldstandspublication14.pdf](http://www.cde.ca.gov/sp/el/er/documents/eldstandspublication14.pdf); please see our EL Plan for additional information regarding the ways we strive to meet our students’ diverse language needs. |
| | In 2014, the CA Department of Education adopted new ELA-ELD Framework, with specific strategies designed to meet the needs of EL students. Visit the following URL to learn more about the new frameworks which we have adopted and to which we have aligned our curricula and practices: [http://www.cde.ca.gov/ci/rl/cf/documents/elaeldfwchapter11.pdf](http://www.cde.ca.gov/ci/rl/cf/documents/elaeldfwchapter11.pdf) |
The Scope and Sequence Guide is a California standards-based document that delineates the standards-based skills students are expected to know and do in order to meet College and Career Readiness expectations outlined within the California Model Career Technical Education Standards. Each unit of study in the Scope and Sequence document is designed to build upon the previous unit and/or prerequisite coursework in support of student mastery of specific standards-based skills. The Scope and Sequence document provides the framework of understanding for key assignments, key assessments, and instructional resources and strategies that serve to assist students in meeting unit learning objectives.

In coursework requiring reading and writing, the following standards are not specifically stated in any one unit of study but are the result of implementation throughout the curriculum as students participate in reading, writing, and speaking/listening standards-based activities.

- By the end of grade 11, students will read and comprehend literary nonfiction in the grades 11-CCR text completely and proficiently, with scaffolding as needed at the high range. (Reading Informational Text Standard 10)
- Students will write routinely over extending time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks and purposes. (Writing Standard 10)
- “To be college and career ready, students must have ample opportunities to take part in a variety of rich and structured conversations – as part of a whole class, in small groups, and with a partner – build around important content in various domains. They must be able to contribute appropriately to conversations, make comparisons and contrasts, and analyze and synthesize a multitude of ideas according to the standards of evidence appropriate to a particular discipline.” (Standards for ELA Anchor Standards for Speaking/Listening).
Culinary Arts & Food Science Scope and Sequence
Unit 1 - Basic Safety Requirements

**Unit Description:** In unit 1, students will be exploring the basic safety requirements and begin to develop an understanding of the basic facts regarding safe food handling. Students will visit a variety of websites and participate in hands-on demonstration labs designed to assess learning. Unit 1 is also designed to begin building a foundational understanding of food storage, basic food chemistry and the technology that has become a foundational support in the industry sector. Students will also be required to establish a digital portfolio and keep an interactive notebook. The digital portfolio will contain all of the key assignments, while the interactive notebook will contain specific industry sector terminology and specific notes and references acquired throughout the course.

**Unit Standards:**

<table>
<thead>
<tr>
<th>Hospitality, Tourism, and Recreation (Knowledge and Performance Anchor Standards:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2.0 Communications:</strong> (used throughout all units of study)</td>
</tr>
<tr>
<td>• Acquire and accurately use Hospitality, Tourism, and Recreation sector terminology and protocols at the career and college readiness level for communicating effectively in oral, written, and multimedia formats.</td>
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<tr>
<td><strong>3.0 Career Planning and Management</strong> (used throughout all units of study)</td>
</tr>
<tr>
<td>• Integrate multiple sources of career information from diverse formats to make informed career decisions, solve problems, and manage personal career plans.</td>
</tr>
<tr>
<td><strong>4.0 Technology</strong> (used throughout all units of study)</td>
</tr>
<tr>
<td>• Use existing and emerging technology to investigate, research, and produce products and services, including new information, as required in the Hospitality, Tourism, and Recreation sector workplace environment.</td>
</tr>
<tr>
<td><strong>5.0 Problem Solving</strong> (used throughout all units of study)</td>
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<tr>
<td>• 5.1 Identify and ask significant questions that clarify various points of view to solve problems.</td>
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<tr>
<td>• 5.4 Interpret information and draw conclusions, based on the best analysis, to make informed decisions.</td>
</tr>
</tbody>
</table>

**Learning Objectives:**

**Students will be able to:**

- Identify the key safety features of working in a kitchen/lab-based setting.
- Use, demonstrate, and cite health and safety practices for storing, cleaning, and maintaining equipment and supplies.
- Utilize industry related terminology during class discussions.
- Demonstrate safe work habits and safety responses to basic first-aid situations.
- Participate individually and work collaboratively with others.
- Utilize the WWW and other technology (such as a chromebook) to conduct short and more sustained research on a specific topic.
- Identify both primary and secondary sources and cite appropriately utilizing a citation manual such as APA.
- Demonstrate leadership and teamwork.

**Key Unit Assignments:**

- **Safety and Work Habits Assignment** - In order to demonstrate the basics of safe work habits and emergency procedures required in the food service and hospitality industry, students will review a PowerPoint (created by the teacher) and visit a variety of websites, including those prepared by the FDA that illustrate the specific safety procedures for working with industry grade equipment and within a lab-based workspace. Students will conduct a guided tour of the classroom facilities and will review all of the equipment protocols. They will add this content to their interactive notebook and use it as a key reference throughout the course. Students will conduct demonstrations designed by the teacher outlining all of the basics of safe work habits, emergency procedures, and causes and preventions of basic accidents and injuries. Students will review safety protocols and will take a safety test where they will need to demonstrate 100% accuracy before participating in the use of any kitchen/hands on lab related activities. **This Safety and Work Habits assignment will be repeated throughout each unit of study or key assignment as students work with more sophisticated tools and equipment or when encountering a new technology.**

- **Digital Portfolio Set Up Assignment** - Students are required to keep a digital portfolio that will serve to showcase their work, including notes, reflections, and photographs of key assignments completed throughout the course. They will utilize a technology of the teacher’s choice to create a digital portfolio. The students will also be required to keep a lab notebook that
6.0 Health and Safety (used throughout all units of study)
- Demonstrate health and safety procedures, regulations, and personal health practices and determine the meaning of symbols, key terms, and domain-specific words and phrases as related to the Hospitality, Tourism, and Recreation sector workplace environment.

7.0 Responsibility and Flexibility (used throughout all units of study)
- 7.4 Practice time management and efficiency to fulfill responsibilities.

8.0 Ethics and Legal Responsibilities (used throughout all units of study)
- 8.1 Access, analyze, and implement quality assurance standards of practice.

9.0 Leadership and Teamwork (used throughout all units of study)
- Work with peers to promote divergent and creative perspectives, effective leadership, group dynamics, teamwork and individual decision-making, benefits of workforce diversity, and conflict resolution as practices in the career technical student organization. (FHA-HERO, the California Affiliate of FCCLA).

10.0 Technical Knowledge and Skills (used throughout all units of study)
- 10.1 Interpret and explain terminology and practices specific to industry.
- 10.5 Define the principles of nutrition and their relationship to good health through the life cycle.
- 10.7 Apply the principles of food purchasing, food preparation, and meal management in a variety of settings.
- 10.9 Identify the aspects of science related to food preparation, product development, and nutrition.

- Synthesize and compare information from a variety of sources.
- Interpret and explain specific industry related terminology.

Outlines key vocabulary/terminology utilized throughout the industry as an ongoing reference.

Introduction to Final End of Course Project - As an end of year culminating final exam assessment of learning, students will complete the following:
- Part 1 - Conduct a mini-research project on two industry related careers in the food service and hospitality pathway. The research must include any schooling/educational requirements, types of career choices (both entry level and extended). All sources must be referenced using a citation manual such as APA. Students will begin to explore a variety of industry related careers beginning in Unit 1 and add information to their notes throughout the course. This will form the foundation for the career research element of the final project.
- Part 2 - Students will select one lab from their year-long experience and present to the class utilizing the following elements:
  - Sanitation and food handling requirements
  - Safety considerations in preparation
  - Key equipment and tools for preparation
  - Mise en place
  - Nutritional value
  - Heating methods utilized in preparation
  - Storage of finished product
  - Cultural significance of dish
  - Cost analysis

Students will present their overall project using a web 2.0 tool of their choice. Examples include: (PPNT, Prezi, Video, Written, Illustration, etc.) Students will conduct presentations in groups (to be determined by instructor) and utilizing an industry standard rubric and industry standard terminology, will present to their peers.
- Part 3 - Each student will receive feedback in the form of a rubric critique and will write an academic summary reflection identifying how they might enhance their presentation based on the feedback.
• 10.11 Explain how to select, safely use, and efficiently care for facilities and equipment related to food product development, food preparation, dining, lodging, tourism, and recreation.

11.0 **Demonstration and Application** (used throughout all units of study)

- 11.1 Utilize work-based/work place learning experiences to demonstrate and expand upon knowledge and skills gained during classroom instruction and laboratory practice.
- 11.5 Create a portfolio or similar collection of work, that offers evidence through assessment and evaluation of skills and knowledge competency as contained in the anchor standards, pathway standards, and performance indicators.

**Hospitality, Tourism, and Recreation Pathway Standards (Food Service and Hospitality Pathway)**

- **B2.1** Identify the causes, prevention, and treatment of common accidents and the reporting procedures involved.
- **B2.2** Practice the basic procedures for the safety of employees and guests, including the procedures for emergency situations.
- **B3.1** Employ the standards of personal grooming and hygiene required by local, state, and federal health and safety codes.
- **B3.2** Understand basic local, state, and federal sanitation regulations as they pertain to food production and service.
- **B3.3** Explain the types of food contamination, the potential causes, including cross-contamination, and methods of prevention.
- **B3.4** Practice safe and sanitary procedures in all food handling, including food receiving, storage, production, service, and cleanup.
- **B5.1** Apply the procedures for cleaning and maintaining facilities and equipment and the importance of preventive
maintenance and the use of nontoxic and less toxic materials.

- B5.2 Recognize the types of materials and supplies used in the maintenance of facilities, including the identification of the hazardous environmental and physical properties of chemicals and the use of Material Safety Data Sheets (MSDS).
- B6.1 Use, maintain, and store the tools, utensils, equipment, and appliances safely and appropriately for preparing a variety of food items.

Hospitality, Tourism, and Recreation Pathway Standards (Food Science, Dietetics, and Nutrition Pathway)

- A3.1 Practice industry-recommended standards for personal grooming and hygiene.
- A3.2 Interpret safe and sanitary food-handling procedures as set forth by local, state, and federal health and safety codes, including reporting and dealing with violations of the food safety code.
- A8.1 Recognize terminology, methods, and equipment used in the food science and technology industry.
- A8.2 Practice safe laboratory and equipment use and maintenance procedures.

<table>
<thead>
<tr>
<th>Key Unit Assessments:</th>
<th>Instructional Resources:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety Exam</td>
<td><a href="https://www.youtube.com/watch?v=HqFPFsJo9zA">https://www.youtube.com/watch?v=HqFPFsJo9zA</a> (Basic Food Safety U-tube videos – Segments 1)</td>
</tr>
<tr>
<td>Safety Notes</td>
<td><a href="https://www.youtube.com/watch?v=H_IZGlfqinU">https://www.youtube.com/watch?v=H_IZGlfqinU</a> - Google U-tube Video (setting up a digital portfolio)</td>
</tr>
<tr>
<td>Hands-on Lab Demonstration on Unit 1 Equipment</td>
<td></td>
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<tr>
<td>Digital Portfolio</td>
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</table>
Culinary Arts & Food Science Scope and Sequence  
Unit 2 - Food Handling and Preparation

**Unit Description:** In unit 2, students build upon the safety requirements for working in a lab-based setting. Students will utilize a variety of industry resources to conduct research and study the basics of food handling and preparation. They will study a variety of informational text pertaining to industry specifications and facts on foodborne pathogenic microorganisms and natural toxins. They will review FDA, CDC, and USDA Food Safety Inspection Service website resources, will be assessed on the information, and then will apply it throughout the course as they conduct a variety of food preparation labs designed to apply the learning to real career readiness situations.

**Unit Standards:**

<table>
<thead>
<tr>
<th>Hospitality, Tourism, and Recreation Pathway Standards (Food Service and Hospitality Pathway)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• B2.2 Practice the basic procedures for the safety of employees and guests, including the procedures for emergency situations.</td>
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<tr>
<td>• B2.3 Understand the role of the California Occupational Safety and Health Administration, the Environmental Protection Agency, and other agencies in regulating practices in the food service and hospitality industry.</td>
</tr>
<tr>
<td>• B3.1 Employ the standards of personal grooming and hygiene required by local, state, and federal health and safety codes.</td>
</tr>
<tr>
<td>• B3.2 Understand basic local, state, and federal sanitation regulations as they pertain to food production and service.</td>
</tr>
<tr>
<td>• B3.3 Explain the types of food contamination, the potential causes, including cross-contamination, and methods of prevention.</td>
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<td>• B3.4 Practice safe and sanitary procedures in all food handling, including food receiving, storage, production, service, and cleanup.</td>
</tr>
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<td>• B5.1 Apply the procedures for cleaning and maintaining facilities and equipment and the importance of preventive maintenance and the use of nontoxic and less toxic materials.</td>
</tr>
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<td>• B5.2 Recognize the types of materials and supplies used in the maintenance of facilities, including the identification of the hazardous environmental and physical properties of</td>
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<table>
<thead>
<tr>
<th>Learning Objectives:</th>
<th>Students will be able to:</th>
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<tbody>
<tr>
<td>• Utilize and cite standards of grooming and hygiene required for working in a lab-based kitchen setting.</td>
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<tr>
<td>• Cite basic sanitation requirements for handling food.</td>
<td></td>
</tr>
<tr>
<td>• Explain basic types of food contamination, causes, and methods of prevention.</td>
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</tr>
<tr>
<td>• Apply procedures for cleaning and maintaining facilities and equipment and importance of preventative maintenance.</td>
<td></td>
</tr>
<tr>
<td>• Practice procedures for inventory of basic food products, storing, and restocking.</td>
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<tr>
<td>• Use, maintain, and store the tools, utensils, equipment, and appliances safely and appropriately.</td>
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<tr>
<td>• Utilize appropriate industry related terminology used in the food science industry.</td>
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**Key Unit Assignments:**

- **Safe Food Handling Assignment** - In order to interpret the basic principles of sanitation and safe food handling, students will conduct a mini-research project on safe food handling. Students will view a series of FDA videos outlining safe food handling, personal hygiene, inadequate cooking and food illness, and use of adulterated food and read and summarize a series of articles and reference materials provided by the instructor. The emphasis of the video series is to interpret the basic principles of chemistry and physics related to changes in food and in food products during preparation, processing, and preservation. Students will examine the chemical and physical changes that occur during food preparation and will use the information to participate in a hands-on lab demonstration. After analyzing a variety of resources, students will then summarize their research and write a 1-3-page paper utilizing at least three primary source documents and 1-2 secondary source documents outlining the basics of industry standards and regulations for safe food handling. As an assessment of learning, students will present their research paper to a group of their peers utilizing industry terminology and assess their own paper using an industry aligned rubric. Students will then upload their final paper to their digital portfolio.

- **Hands-On Lab Demonstration** – As an assessment of learning, students will conduct a safe food handling lab exercise that includes all of the elements of safe food handling and preparation acquired through the student’s research study. The students will complete a lab report that outlines the basic principles of chemistry related to their specific safe tool demonstration.
chemicals and the use of Material Safety Data Sheets (MSDS).
- B5.5 Understand how various departments in a food service facility contribute to the economic success of a business.
- B6.1 Use, maintain, and store the tools, utensils, equipment, and appliances safely and appropriately for preparing a variety of food items.

**Hospitality, Tourism, and Recreation Pathway Standards**  
(Stated科氏, 悉数, 拟态)  
- A3.1 Practice industry-recommended standards for personal grooming and hygiene.
- A3.2 Interpret safe and sanitary food-handling procedures as set forth by local, state, and federal health and safety codes, including reporting and dealing with violations of the food safety code.
- A8.1 Recognize terminology, methods, and equipment used in the food science and technology industry.
- A8.2 Practice safe laboratory and equipment use and maintenance procedures.

### Key Unit Assessments:
- Research Paper on Basic Food Handling and Industry Regulations & Content Related Quiz (generated by teacher)
- Lab Demonstration
- End of Unit Test

### Instructional Resources:
- [https://www.youtube.com/watch?v=Hk4jPinPVCs](https://www.youtube.com/watch?v=Hk4jPinPVCs) (Video 2 – Safe Food Handling – Temperature)
- [https://www.youtube.com/watch?v=Zy9uD44te9s](https://www.youtube.com/watch?v=Zy9uD44te9s) – (Video 3 – Personal Hygiene)
- [https://www.youtube.com/watch?v=vgmo2a24h8](https://www.youtube.com/watch?v=vgmo2a24h8) – (Video 4 – Inadequate Cooking and Food Illness)
- [https://www.youtube.com/watch?v=bW8HkHIQU1U](https://www.youtube.com/watch?v=bW8HkHIQU1U) (Video 5 - Adulterated Food)
- [https://www.youtube.com/watch?v=XkeEqBViAbg](https://www.youtube.com/watch?v=XkeEqBViAbg) (Review Video 6)
- [https://owl.english.purdue.edu/owl/](https://owl.english.purdue.edu/owl/) - Purdue writing center
- [http://www.cdc.gov](http://www.cdc.gov) - Center for Disease Control

### End of Unit Exam
- As an assessment for learning, students will take an end of unit exam on safe food handling.
Unit Description: Unit 3 serves as a demonstration of learning. Students will participate in a variety of hands-on lab exercises that are designed as project-based learning activities to assess students' understanding of industry-specific safety requirements for participation in an industry-related setting, to assess students' ability to follow multiple-step instructions on food preparation and handling, and to provide students with an opportunity to assess their own learning utilizing common industry-related rubrics for common food preparation and handling in the industry sector. Students will return to their end of year career research activity and add additional careers to their notes.

Unit Standards:

Hospitality, Tourism, and Recreation Pathway Standards (Food Service and Hospitality Pathway)
- B3.1 Employ the standards of personal grooming and hygiene required by local, state, and federal health and safety codes.
- B3.2 Understand basic local, state, and federal sanitation regulations as they pertain to food production and service.
- B3.3 Explain the types of food contamination, the potential causes, including cross-contamination, and methods of prevention.
- B3.4 Practice safe and sanitary procedures in all food handling, including food receiving, storage, production, service, and cleanup.
- B5.1 Apply the procedures for cleaning and maintaining facilities and equipment and the importance of preventive maintenance and the use of nontoxic and less toxic materials.
- B6.1 Use, maintain, and store the tools, utensils, equipment, and appliances safely and appropriately for preparing a variety of food items.

Hospitality, Tourism, and Recreation Pathway Standards (Food Science, Dietetics, and Nutrition Pathway)
- A3.1 Practice industry-recommended standards for personal grooming and hygiene.

Learning Objectives:

Students will be able to:
- Demonstrate industry standards for personal grooming and hygiene in a kitchen setting.
- Demonstrate sanitary food handling procedures.
- Produce a product following step-by-step instructions.
- Identify key procedures to prevent spread of food-borne pathogens and illness when working with baked goods.
- Recognize and use correct industry terminology and equipment in the food science and food handling industries.
- Conduct a hands-on food preparation lab and assess results utilizing an industry-specific rubric.
- Clean, maintain, and properly store equipment and tools.

Key Unit Assignments:
- Introduction to Food Service and Preparation Lab 1 – Working in collaborative teams, students will conduct a hands-on food preparation activity where they are expected to apply the principles of working in the kitchen, the practices of safe food handling, presentation, and storage. Students will demonstrate industry-related expectations acquired in Units 1 and 2. Students will demonstrate their learning through a series of competency-based assignments (pie demonstrations, cookie and cake demonstrations, muffins and quick breads, and baking and yeast breads). While completing a series of food preparation tasks, students will be expected to demonstrate their understanding of specific tools, utensils, equipment and appliances as they prepare a variety of food items, focusing on use of industry standard expectations for safety in an industry setting. As a basis for understanding the chemistry of food, the students will evaluate the qualities and properties of the food items used for baked goods and within specific recipes. They will analyze the recipe for nutritional value, explain the quality control standards and the procedures used throughout each phase of preparation. Students will explain the chemical and physical changes that occur during preparation and changes in nutritional value through the baking process. They will plan and follow a specific food preparation schedule, including timing and prioritizing the preparation choices (mise en place). They will practice industry-related specifications for personal grooming and hygiene when working in the kitchen environment and apply these throughout the remainder of the course.
- A3.2 Interpret safe and sanitary food-handling procedures as set forth by local, state, and federal health and safety codes, including reporting and dealing with violations of the food safety code.
- A8.1 Recognize terminology, methods, and equipment used in the food science and technology industry.
- A8.2 Practice safe laboratory and equipment use and maintenance procedures.

- **Food Analysis** - Students will select from four prepared items and will complete an analysis of the baking process from inception of recipe through final product tasting. They will identify the basic nutritional value of the dish, the basic chemistry related to the change in food during preparation, the qualities and properties of the ingredients used, the safety techniques applied during the process, and the common practices for industry recommended standards for food handling. Students will create a bulleted list of each criteria heading and all subheading information followed by a 1-page summary reflection of their learning.

### Key Unit Assessments:
- Completion of Each Demonstration
- Summary Writing of 4 Labs of Choice
- 1 Page Reflection
- End of Semester Final

### Instructional Resources:
- [http://www.ode.state.or.us/teachlearn/certificates/cam/pdfs/orframe/reg12culinaryartsrubric.pdf](http://www.ode.state.or.us/teachlearn/certificates/cam/pdfs/orframe/reg12culinaryartsrubric.pdf) - Oregon State University food certification rubrics
- [http://www.fda.gov/Food/GuidanceRegulation/](http://www.fda.gov/Food/GuidanceRegulation/)
- [https://www.accessdata.fda.gov/videos/CFSAN/HWM/hwmintro.cfm](https://www.accessdata.fda.gov/videos/CFSAN/HWM/hwmintro.cfm) - Nutritional Guidelines Information
- [http://www.fda.gov/Food/IngredientsPackagingLabeling/LabelingNutrition/ucm281746.htm](http://www.fda.gov/Food/IngredientsPackagingLabeling/LabelingNutrition/ucm281746.htm) - FDA Read the Label
Culinary Arts & Food Science Scope and Sequence
Unit 4 - Application of Food Service and Preparation

Unit Description: Unit 4 also serves as a demonstration of learning. Students will participate in a variety of hands-on lab exercises that are designed as project based learning activities to assess students understanding of industry specific safety requirements for participation in an industry related setting, to assess students ability to follow multiple step instructions on food preparation and handling, and to provide students with an opportunity to assess their own learning utilizing common industry related rubrics for common food preparation and handling in the industry sector. Students explore topics of nutritional value in food items and interpret the basic chemical principles associated with food preparation and processing.

Unit Standards:

Hospitality, Tourism, and Recreation Pathway Standards (Food Service and Hospitality Pathway)
- B3.3 Explain the types of food contamination, the potential causes, including cross-contamination, and methods of prevention.
- B3.4 Practice safe and sanitary procedures in all food handling, including food receiving, storage, production, service, and cleanup.
- B4.1 Understand the responsibilities of management, such as ensuring safe work practices and conditions and complying with important laws and regulations that affect employment, such as wage and hour laws, tenant status, and accommodation of minors.
- B4.2 Understand the importance of specific human resource practices and procedures that address workplace diversity, harassment, personal safety, and discrimination.
- B4.5 Design and interpret business plans including: the mission, vision, target market, location, financing, and the community and ecological context of the business.
- B5.1 Apply the procedures for cleaning and maintaining facilities and equipment and the importance of preventive maintenance and the use of nontoxic and less toxic materials.
- B5.2 Recognize the types of materials and supplies used in the maintenance of facilities, including the identification of the hazardous environmental and physical properties of chemicals and the use of Material Safety Data Sheets (MSDS).

Learning Objectives:
Students will be able to:
- Demonstrate industry standards for personal grooming and hygiene in a kitchen setting.
- Demonstrate sanitary food handling procedures.
- Produce a product following step-by-step instructions.
- Identify key procedures to prevent spread of food-borne pathogens and illness when working with eggs and egg products.
- Understand and identify the chemical reactions and physical changes that occur during food preparation.
- Examine the nutritional guidelines and value of specific food items.
- Recognize and use correct industry terminology and equipment in the food science and food handling industries.
- Conduct a hands-on food preparation lab and assess results utilizing an industry specific rubric.
- Clean, maintain and properly store equipment and tools.

Key Unit Assignments:
- Reminder of Final End of Course Project - When beginning Unit 4, remind students of their end of semester final project and, if they haven’t already done so, have them begin conducting their career research and adding their notes to their portfolio. (Refer to Unit 5)
- Food Service and Preparation Lab 2 – In order to further enhance their understanding of the nutritional value in food items, and the effects of chemical changes on food through the preparation process, students will conduct a variety of cooking labs preparing a variety of dishes utilizing eggs and egg products. Students will analyze the qualities and properties of the food and ingredients used in each preparation method. Students will be required to explain and demonstrate the proper cooking techniques of eggs in and out of the shell. They will also be required to explain the nutritional information and dietary guidelines for each presentation. Students will interpret the basic principles of chemistry related to the changes in the food during preparation and processing. They will demonstrate their understanding of the fact that the chemical and physical changes occur during food preparation. They will apply the basic food preparation techniques acquired throughout the course including use of a variety of tools, equipment, utensils, and key safety features. As an additional element of learning, students will be placed into teams and will begin to take on management responsibilities common in work place environments. They will take on roles such as team lead and will manage their time accordingly, will ensure for safe working practices, and will create a plan for accomplishing their labs. They will be expected to follow multi step instructions and
B5.6 Prioritize tasks and plan work schedules based on budget and personnel.

B6.1 Use, maintain, and store the tools, utensils, equipment, and appliances safely and appropriately for preparing a variety of food items.

B7.1 Use, maintain, and store the tools, utensils, equipment, and appliances safely and appropriately for preparing, serving, and storing baked goods, pastries, and desserts.

B7.2 Apply the principle of mise en place, including the placement and order of use of the ingredients, tools, and supplies unique to baking and pastry production.

B10.1 Apply basic nutritional principles and know how to use food preparation techniques that conserve nutrients.

B10.2 Interpret nutritional or ingredient information from food labels and fact sheets and analyze menu items to meet the dietary needs of individuals.

B11.2 Understand the components of a profit and loss statement emphasizing food and labor costs.

Hospitality, Tourism, and Recreation Pathway Standards (Food Science, Dietetics, and Nutrition Pathway)

A3.1 Practice industry-recommended standards for personal grooming and hygiene.

A3.2 Interpret safe and sanitary food-handling procedures as set forth by local, state, and federal health and safety codes, including reporting and dealing with violations of the food safety code.

A4.4 Formulate recommended diets for different dietary and health needs.

A5.3 Analyze popular diets for recommendations that are consistent with, or contrary to, approved dietary guidelines.

A8.1 Recognize terminology, methods, and equipment used in the food science and technology industry.

complete their assigned food items. They will prioritize tasks and create a schedule for completion. Students will also be required to analyze the various food items needed to carry out their lab and will create a budget plan and nutritional guidelines recommendation chart for their items. They will utilize a common rubric and evaluate their product according to industry standards. They will take a photograph of each presentation and upload it to their digital portfolio. As a demonstration of their learning, students will take a quiz by which they will have to identify a variety of egg dishes and cite at least one chemical reaction as a result of cooking and at least one potential for contamination if not properly prepared.

Food Service and Preparation Lab 3 - In order to further expand on their understanding of physical and chemical reactions in food preparation, students will conduct a series of hands-on labs designed to demonstrate the chemical changes that occur in foods as a result of various preparation techniques. Students will analyze a variety of fruits and vegetables, both for their physical attributions and how their use in specific recipes alters their nutritional value. They will study the basic categories of each, their scientific and general name, quality assuredness requirements, etc. They will then conduct a variety of hands-on cooking demonstrations where they will be required to explain and demonstrate the proper cooking techniques, the nutritional information and dietary guidelines for each presentation. In order to enhance the student’s understanding of the chemical changes in food, students will be required to use heat as a variable and discuss how increased and decreased temperature changes alter the product outcome. They will graph their findings using at least three different temperature variations and interpret the basic principles of chemistry related to the changes in the food during preparation and processing. They will demonstrate their understanding of the fact that the chemical and physical changes occur during food preparation. Students will take a photograph of each presentation and upload it to their digital portfolio. Students will then write a one-page reflection on this process.
- A8.2 Practice safe laboratory and equipment use and maintenance procedures.
- A9.2 Explain quality control, assurance standards, and the procedures for each used in research and development.
- A9.5 Test food products by using controls, variables, and random sampling.

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<thead>
<tr>
<th>Key Unit Assessments:</th>
<th>Instructional Resources:</th>
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<tr>
<td>- Chemical Analysis Summary Including Data Analysis Heat Variable Graph</td>
<td>- <a href="http://www.huffingtonpost.com/2015/01/22/cooking-eggs-guide-over-easy-sunny-side-up-lol-n-6520220.html">http://www.huffingtonpost.com/2015/01/22/cooking-eggs-guide-over-easy-sunny-side-up-lol-n-6520220.html</a> - Article on Ordering Eggs</td>
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<td>- Exploratorium <a href="https://www.exploratorium.edu/cooking/eggs/eggscience.html">https://www.exploratorium.edu/cooking/eggs/eggscience.html</a> - article on anatomy of eggs</td>
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**Unit Description:** As a culminating unit of instruction, students will demonstrate their understanding of food science and preparation by completing two key assignments that address the foundations of diet, preparing food from scratch, reconfiguring the safety, nutritional value, and chemical reactions of foods during all phases of preparation. They will utilize industry standards in critiquing their own work and those of their peers, write reflections of their work, and continue to add to their digital portfolio. As a comprehensive end of course final exam, students will conduct an industry related mini-research project focusing on college and career readiness skills. They will utilize Web 2.0 tools in preparing their presentation, employ various speaking/listening skills when presenting to others, and respond to specific feedback utilizing industry terminology. Students will then select their best portfolio work from the year and conduct an in-depth analysis of the work, demonstrating an understanding of all of the major aspects of safe work habits, the science of food preparation, basic systems of operation within the work place, food handling and sanitation principles, food preparation planning, use of appropriate tools, equipment, and appliances, key criteria for packaging and storage, etc. The information will be part of an overall presentation.

**Unit Standards:**

**Hospitality, Tourism, and Recreation Pathway Standards (Food Service and Hospitality Pathway)**
- B1.0 Demonstrate an understanding of major aspects of the food service and hospitality industry and the role of the industry in local, state, national, and global economies. B2.0 Demonstrate the basics of safe work habits, security, and emergency procedures required in food services and hospitality establishments.
- B3.3 Explain the types of food contamination, the potential causes, including cross-contamination, and methods of prevention.
- B3.4 Practice safe and sanitary procedures for food handling, including food receiving, storage, production, service, and clean up.
- B4.0 Analyze the basics of food service and hospitality management.
- B5.1 Apply the procedures for cleaning and maintaining facilities and equipment and the importance of preventative maintenance and the use of nontoxic and less toxic materials.
- B5.6 Prioritize tasks and plan work schedules based on budget and personnel.

**Learning Objectives:**
- Students will be able to:
  - Illustrate and apply basic food preparation techniques to their hands-on lab.
  - Work independently and with others.
  - Utilize industry specifications for safety and preparation.
  - Use industry vocabulary appropriately.
  - Conduct short as well as sustained research and compile.
  - Write routinely over time.
  - Use technology appropriately.
  - Communicate orally and in writing, demonstrate effective listening and speaking skills.
  - Evaluate the quality of their own and others’ work.
  - Identify specific industry related careers and educational requirements (college and career readiness).

**Key Unit Assignments:**
- **Food Service Preparation Lab 4** – In labs 4 and 5, students work as workforce teams to prepare a variety of dishes according to industry specifications. They will be expected to demonstrate an understanding of the key aspects of food science and nutritional guidelines and the role they play in industry standards. Students will study a variety of informational texts that discuss the various types of grains and rice utilized in food preparation, including the cultural significance and history of usage. They will apply the basic food preparation techniques acquired throughout the course including use of a variety of tools, equipment, utensils, and key safety features. Students will follow multi step instructions and complete their assigned food items. They will utilize a common rubric and evaluate their product according to industry standards. Students will analyze the qualities and properties of the food and ingredients used in each preparation. They will apply plating techniques, including accurate portioning and aesthetic presentation. Students will take a photograph of each plate; upload it to their digital portfolio. At the conclusion of the experience, students will select one dish and write a 1-page analysis of the dish, which must include the following: (type of grain, storage, uses, measurement requirements, and cost for a quantity to be determined, nutritional value, preparation technique). Included in their analysis will be a brief page reflection of the key assignment including areas where they could improve upon the preparation.
B6.1 Use, maintain, and store the tools, utensils, equipment, and appliances safely and appropriately for preparing a variety of food items.
B6.2 Apply the principle of *mise en place*, including the placement and order of use of ingredients, equipment, tools, and supplies.
B6.4 Plan and follow a food production schedule, including timing and prioritizing of tasks and activities.
B6.6 Design plating techniques, including accurate proportioning and aesthetic presentation skills.
B7.1 Use, maintain, and store tools, utensils, equipment, and appliances safely and appropriately for preparing, serving, and sorbing baked goods, pastries, and desserts.
B7.2 Apply the principle of *mise en place*, including the placement and order of use of the ingredients, equipment, tools, and supplies unique to baking and pastry production.
B8.5 Interact with customers in a positive, responsive, and professional manner.
B10.1 Apply basic nutritional principles and know how to use food preparation techniques that conserve nutrients.
B11.6 Calculate recipe costs and pricing per portion and compare the cost per cover to the theoretical costs.
B12.5 Research the various types of entrepreneurial opportunities in food service industry.

Exercise appropriate time management and organizational skills. Evaluate specific works from a portfolio or similar collection of work.

- **Exercise appropriate time management and organizational skills.**
- **Evaluate specific works from a portfolio or similar collection of work.**

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**Exercise appropriate time management and organizational skills.**

**Evaluate specific works from a portfolio or similar collection of work.**

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**Final End of Course Project**

- **Part 1** - Conduct a mini-research project on two industry related careers in the food service and hospitality pathway. The research must include any schooling/educational requirements, types of career choices (both entry level and extended). All sources must be referenced using a citation manual such as APA. Students will begin to explore a variety of industry related careers beginning in Unit 1 and add information to their notes throughout the course. This will form the basis of the mini-research project.

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foundation for the career research element of the final project.

- **Part 2** - Students will select one lab from their year-long experience and present to the class utilizing the following elements:
  - Sanitation and food handling requirements
  - Safety considerations in preparation
  - Key equipment and tools for preparation
  - Mise en place
  - Nutritional value
  - Heating methods utilizing in preparation
  - Storage of finished product
  - Cultural significance of dish
  - Cost analysis

Students will present their overall project using a web 2.0 tool of their choice. Examples include: (PPNT, Prezi, Video, Written, Illustration, etc.). Students will conduct presentations in groups (to be determined by instructor) and utilizing an industry standard rubric and industry standard terminology, will present to their peers.

- **Part 3** - Each student will receive feedback in the form of a rubric critique and will write an academic summary reflection identifying how they might enhance their presentation based on the feedback.

### Key Unit Assessments:
- 1 Page Reflection on Choice Item
- Photograph of Each Finished Product (Both Grains and Pasta Projects)
- Notes on History and Use of Rice, Grains and Pasta
- Quiz on Rice, Grains and Pasta
- Critique Forms from Food Taste Test
- Career Research Paper
- Presentation and Summary Reflection

### Instructional Resources:
- [https://owl.english.purdue.edu/owl/](https://owl.english.purdue.edu/owl/)

### Interviewing Skills Free Resources:
- [http://www.gcflearnfree.org/interviewingskills](http://www.gcflearnfree.org/interviewingskills)