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SCHOOL OF FOOD AND WINE STUDIES
DEPARTMENT OF CULINARY ARTS
COURSE TITLE: NUTRITIONAL COOKING
COURSE CODE: FWCANC450
3 semester credits

1. DESCRIPTION

Starting from the previously acquired knowledge of macro and micro nutrients, this course will provide students with the tools to analyze and develop a wide variety of nutritionally balanced meals on a seasonal basis.
Students will learn the fundamentals of metabolism and digestion and apply previously acquired cooking methods in order to preserve nutrients, and the possible applications of a wide variety of ingredients to create satisfying dishes while still respecting nutritional concepts.
Emphasis will be placed on the analysis of special dietary requirements either depending on dietary special needs or ethical choices. Raw foodism, vegetarian, and vegan diet as well as the possible alternatives to guarantee a balanced nutrient intake will be thoroughly covered. The course will give students the tools to design meals on a seasonal basis following the principles of healthy cooking.

This course consists of experiential learning hours with our Community Engagement Member Institutions (CEMI). CEMI are dynamic learning environments created to foster learning through a structured interaction with the community. In addition to regular lecture hours, students will be involved in learning by doing through real projects and integration with the local population and territory in order to remove cultural and learning barriers as well as to develop a strong likelihood for success in life. The experiential learning hours are fully supervised by instructors who track students step by step during their learning experience, monitor and advise according to student needs, and support student initiative. This unique learning model allows students to benefit from an all-encompassing educational experience based on theory and practice in real enterprises, learning of comprehensive operational processes, problem-solving, leadership, and management.

2. OBJECTIVES

The goal of the course is to develop students 'knowledge of the nutritional concepts when applied to the creation of healthy balanced meals.
Through the understanding of food composition and applying new and previously learned cooking methods, students will be able to plan nutritionally balanced and healthy menus and to critically evaluate the too often confusing and contradictory dietary advice of western society.
Upon successful completion of the course students will:

- Identify the dietary benefits of the single categories of nutrients
- Apply dedicated cooking methods in order to preserve the quality of nutrients, flavor, texture and appeal
- Understand the advantages of a nutritionally balanced diet for a healthy living

- Create nutritionally balanced meals depending on specific dietary requirements
- Identify sources of monounsaturated and polyunsaturated fats
- Understand what is cholesterol and what food to use to keep blood cholesterol under control
- Shift the emphasis on plates toward grains, legumes, vegetables and fruits as the "center of the plate"
- Select foods that help to achieve the nutritional goals and guidelines
- Learn a variety of seasoning and flavoring techniques to help reduce reliance on salt and fats
- Understand how to build a balanced diet in vegetarian and vegan regimens
- Create gourmet vegetarian menus
- Create gluten free menus

3. REQUIREMENTS

Three semesters of culinary arts or dietetics/nutrition coursework and Cooking Light: Contemporary Techniques for Healthy Living, or equivalent.

4. METHOD

This course consists of lectures, class discussions, projects, and interaction with the local community. Mediums for instruction used will include, but are not limited to, interactive and hands-on activities which challenge thought processes, integrate relevant academic sources, may include multimedia references, propose creative problem-solving, and other appropriate forms of delivery as deemed appropriate to the course's purpose.

5. TEXTBOOK – FURTHER READINGS – RESOURCES

TEXTBOOK (Copy available at the university library):

Karen Drummond, Lisa Brefere - **Nutrition for foodservice and culinary professionals** – Wiley
The textbook is mandatory for course participation and completion. Where applicable additional materials may be provided by the instructor.

FURTHER READINGS

Fats and fatty acids in human nutrition: Report of an expert consultation – FAO - 2008
The Art of Nutritional Cooking - M. Baskette, J.Painter - 3rd Edition - Prentice Hall Editions
Wellness Foods A to Z: An Indispensable Guide for Health-Conscious Food Lovers - Sheldon Margen - The University of California, Berkeley Wellness Letter
Encyclopedia of Healing Foods – Michael T. Murray, Joseph and Lara Pizzorno - ATRIA Books
What to Eat - Marion Nestle - North Point Press
Techniques of Healthy Cooking - Wiley
On food and cooking - Harold McGee - Hodder & Stoughton

LIBRARY

Course participants may access the campus library. Please consult the library site for resources such as collections, borrowing, scanning and wifi connection, and research:
https://www.auf-florence.org/Library/the-library/

6. COURSE MATERIALS

(NOTE: STUDENTS MUST ALSO ADHERE TO KITCHEN RULES OUTLINED IN THE CEMI BOOKLET)

1. All students are strictly required to attend class wearing a clean uniform: the jacket provided by the institution, black pants, apron (color depending on the CA level), safety footwear, a white Chef's hat, and a set of knives. Students with long hair should tie hair back before wearing the hat. Students are not allowed to wear rings, earrings or any other visible piercings, bracelets, watches, and nail polish during lab hours. Students who are not dressed properly will not be allowed in class.
2. All students must attend class fully prepared and on time. Late students will not be accepted.
3. Carefully wash hands at the beginning of each class, before food is handled.
4. During professional cooking classes only small food tastings are allowed as the main purpose of these courses is to develop technical skills. Students are not allowed to take food out of the kitchen.
5. Students are also required to participate in a polite and responsible way. Students are not allowed to sit on the working stations. Students who disturb lessons or are disrespectful to the instructor or the other students will be asked to leave the class. Serious infractions will be evaluated by the Academic Office.
6. Cooking classes will include various tasks which all students must carry out. Classes will include all different types of recipes and students are expected to actively participate in all lessons regardless of personal likes or dislikes.
7. Each student is responsible for washing all utensils used during class and keeping the working station clean and tidy, with all the utensils as listed in the station inventory. Two students at a time will tidy up the kitchen common areas during each class.
8. Students are responsible for kitchen utensils and maintenance of the equipment. The cost of a) any missing utensil b) damages due to student carelessness will be shared by all students.
9. No visits are allowed in class at any time.
10. The use of cellular phones is not allowed within the school building.

Should students wish to store materials or equipment, lockers are available with a deposit (given back after returning the key).

7. COURSE FEES

Course fees cover course-related field learning activities, visits, and support the instructor's teaching methodologies. Book costs are not included in the course fee. If this course requires a fee, the exact amount is communicated prior to enrollment.

8. GRADING AND EVALUATION & ATTENDANCE

10% Attendance
10% Class Participation
15% Assignments
15% Practical Performances
15% On-site Supervisor evaluation
20% Final Exam
15% Final Project

The above grade breakdown percentages reflect the grading scale standards in the "Grading and Evaluation System" section of the catalog.

Attendance

Class participation is mandatory. Based on the hours defined in the Academic Catalog's attendance policy, students may miss up to 2 class encounters delivered as lecture hours. A third absence constitutes a course failure.

Please note that absence hours may vary according to the learning methodology, as per the academic catalog policy on credit hours:
https://catalog.auf-florence.org/standard_regulation

9. EXAMS / PROJECTS / ASSIGNMENTS

Final Exam: The final exam is divided into two sections:
Part I: written test
Part II: hands-on performance

The written test is divided into three sections:
Part I: 10 Multiple choice questions. Each correct answer is worth 2 points, for a total of 20 points.
Part II: 10 short-answer questions. Each correct and complete answer (concise explanations, main ideas, key words, names, etc.) is worth 5 points, for a total 50 points.
Part III: two essay questions; each correct and complete answer is worth 15 points (based on content, vocabulary, detail, etc.) for a total of 30 points.

No pencil allowed. Blue and black pens only.
The practical test will be defined by the Chef instructor.
Further details (guidelines, grading rubric, hands-on exam) are provided in the course portal.

The final exam is cumulative and will account for the 20% of the final grade breakdown.
The time and date of the exam cannot be changed for any reason.

Final Project: The final project accounts for 15% of the final course grade. The project details will be assigned the first day of class.

Assignments: This course requires at least 3 assignments as per the course outline in the syllabus.

Assignment 1: Students will provide a **short research on vegetarian cuisine** highlighting the benefits of this type of diet and the combination of plant-based ingredients that provide complete amino acid profiles.

Assignment 2: Students will prepare a **raw food dish** applying the techniques learned in class. They will work in pairs whenever possible and will receive specific guidelines and deadlines from the Chef instructor.

Assignment 3: Students will be tasked with preparing **daily special dishes** to be served during meal services. They will work in pairs whenever possible and will receive specific guidelines and deadlines from the Chef instructor.

Further details are provided in the course portal.

10. COURSE OUTLINE

The below list of topics does not indicate a sequence.

1. **Introduction to the course**
Review of modern basic nutritional concepts and their application - “Macro and Micro” nutrients

Readings: The Art of Nutritional Cooking - M. Baskette, J.Painter- pp.21-24, 39-40

2. **Dietary Fibre**
The role of fibers in human digestion: structure, sources and digestion of fibres – Health effects of dietary fibre – Daily intake - Combining fibre-rich foods for a healthy diet
Benefits of eating whole foods VS refined foods
Survey of foods rich in fibre - Survey of foods glycemic index
Whole flour and pseudocereals: benefits for health & suggestions for the use
Balancing a diet with an emphasis on dietary fibre

TB – pp.16-20, 78-85, 92-96
Suggested readings:
The Art of Nutritional Cooking - M. Baskette, J.Painter- pp.56-67

3. **Protein sources**

3.1 Complementary proteins
Structure, sources, and digestion of proteins – Functional and nutritional properties of proteins
Survey of foods containing proteins: proteins quality
Definition of complementary proteins – Protein combinations: dos and don’ts
Balancing a diet with an emphasis on proteins: how to combine nutrients to create balanced one-course meal dishes
Ingredients: Quinoa and amaranth - Nutritional facts and culinary applications

TB – pp.144-152
Suggested readings:
The Art of Nutritional Cooking - M. Baskette, J.Painter – pp.69-79

3.2 Plant proteins: low cholesterol and low saturated fats
Plant proteins as an alternative in order to cut calories and serve nutritionally balanced meals
Soy products: focus on Tofu
Wheat proteins: focus on Seitan
Nutritional composition and suitable applications in the kitchen

Readings TB page 177 - 178 – 185
https://www.researchgate.net/publication/323676422_Tofu_technological_and_nutritional_potential
https://www.researchgate.net/publication/221916478_Soya_Human_Nutrition_and_Health
https://www.researchgate.net/publication/284893010_Soy_products_as_healthy_and_functional_foods
https://urbanvegan.net/seitan-nutrition/
https://www.nutritionix.com/food/seitan

4. **Lipids - Fats, oils and relatives**

NOTE: Part of this topic is included in the Cooking Light course syllabus as an essential part for the course treatise

Classification of lipids – Lipids structure: Fatty acids
Metabolism of dietary fats and oils
Survey of lipids content in food
Balancing a diet with an emphasis on lipids

4.1 **Omega 3 and Omega 6 Fatty Acids**

Antioxidant properties - Sources and suggested intake
Essential fatty acids: LA & ALA
Cooking and eating healthy: Omega3/Omega6 ratio

4.2 **Cholesterol**

Definition and purposes for human body
Difference between blood and dietary cholesterol: LDL and HDL
Survey of foods that help keeping a low blood cholesterol level

TB – pp.114-132
Suggested readings:
The Art of Nutritional Cooking - M. Baskette, J.Painter – pp.89-95
Fats and fatty acids in human nutrition: Report of an expert consultation – FAO – 2008 Ch.3

4.3 **Oily Seeds**

Nutritional profile and raw seeds application: culinary and nutritional purposes

Readings: The Art of Nutritional Cooking - M. Baskette, J.Painter Ch.6-7

5. **Vitamins and minerals**

Review of the importance of micronutrients for health
Survey of vitamins and minerals sources
How to preserve vitamins and minerals when cooking
Balancing a diet with an emphasis on micronutrients

5.1 **Raw foodism**

Definition of raw food diet - Reasons for the choice - History of the development of raw foodism - Advantaged and disadvantages
Suitable non-cooking techniques to guarantee variety and digestibility in a raw food diet

5.2 **Iron sources**

Heme & non-Heme Iron: food combinations for a better iron absorption
Focus on Vitamin C
Survey of non-heme iron sources: focus on dried apricots, almonds, lentils, brown rice

https://hemochromatosishelp.com/heme-iron-vs-non-heme-iron/
https://www.mja.com.au/system/files/issues/196_10_040612_supplement/sau11494_fm.pdf

6. **Flavorings in healthful cooking**

Enhancing dining pleasure with flavorful ingredients
The use of flavorful ingredients is fundamental to increase dining pleasure in low-fat or fat-free diets
NOTE: Part of this topic is included in the Cooking Light course syllabus as an essential part for the course treatise

6.1 **Wines, Spirits and Beer**

Flavoring with wines, spirits and beer
Effects of alcohol on human metabolism – Cooking with alcohol: suggestions and tips

Readings: The Art of Nutritional Cooking - M. Baskette, J.Painter - pp. 301-304
See additional material on the course website

6.2 **Herbs and Spices**

Herbs and spices application for culinary purposes – Terpens and phenols in herbs and spices: antioxidant and antibacterial properties

TB – pp.234-245
Suggested readings:
The Art of Nutritional Cooking - M. Baskette, J.Painter - pp. 305-312
www.mdpi.com/1422-0067/15/10/19183/pdf
https://www.researchgate.net/publication/30387048_Health_benefits_of_herbs_and_spices_Public_Health
https://www.researchgate.net/publication/282353976_The_Value_of_Spices_Uses_Nutritional_and_Health_Benefits

6.3 **Nuts, Aromatic Vegetables, Mushrooms**

Survey of nutrients in nuts and seeds – Culinary applications
How to use aromatic vegetables for a tasty and healthy meal
Mushroom application for nutritional balance and flavor complexity

The Art of Nutritional Cooking - M. Baskette, J.Painter – pp.233-241
Suggested readings:
www.fao.org/3/a-v8929e.pdf
https://www.cnpp.usda.gov/sites/default/files/nutrition_insights_uploads/Insight23.pdf

7. **Special Dietary Requirements**

7.1 Food allergy VS Food intolerance

Definition and differences – Common allergens and allergies diffusion
Common sources of intolerances
European regulations on the provision of food information to consumers
Safety recommendations for food service professionals
Suitable culinary alternatives for most common restrictions

Suggested readings:
https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32011R1169

7.2 **Celiac Disease**

Definition of celiac disease or “gluten sensitive enteropathy”
Suitable ingredients in a gluten free diet – Culinary alternatives

Ingredients: Millet, Chestnut
Nutritional facts and culinary applications

See additional material on the course website

7.3 Plant Food-Based Diet: Vegetarianism
Survey of different plant-based diets: distinctions and characteristics
Lacto & Lacto-Ovo Vegetarian / Fruitarian / Pescatarian / Vegan
The reasons for an ethical choice
Nutrients deficiency: analysis of nutritional deficiencies in vegetarian diets
Balancing a diet: a dedicated approach for each type of vegetarian diet

TB – pp. 161-164, 354-356
Suggested readings:
The Art of Nutritional Cooking - M. Baskette, J.Painter – pp.258-265
https://vegetariannutrition.net/docs/Protein-Vegetarian-Nutrition.pdf

7.4 Vegan diet
Balancing a vegan diet: suggestions for a complete nutrients intake when choosing a vegan diet
The radical approach of "natural pastry"
Iron, vitamin D, Calcium and B vitamins deficiency in a vegan diet.

TB – pp.161-164, 354-356

8. ALTERNATIVE SOURCES OF NUTRIENTS

8.1 Seaweeds
Nutritional facets of seaweeds: proteins, soluble fibre, vitamin D – Suitable application in the kitchen

http://www.berkeleywellness.com/healthy-eating/food/article/6-things-know-about-seaweed
https://www.researchgate.net/publication/305474158_A_REVIEW_ON_NUTRITIONAL_FACETS_OF_SEAWEEDS

8.2 Chia seeds
Modern superfood: omega 3 (ALA), calcium, fibre, proteins
Handling chia seeds for both raw and cooked applications

https://www.researchgate.net/publication/316994147_Chia_seeds_products_an_overview
https://www.hsph.harvard.edu/nutritionsource/food-features/chia-seeds/

LEARNING OUTCOMES

- Apply fundamental nutritional principles in the development of professional recipes and menus.
- Formulate nutritionally balanced dishes that meet diverse dietary and health requirements.
- Identify key nutrient sources among commonly available ingredients in the market
- Recognize foods naturally rich in dietary fibre and explain the physiological functions of fibre in human nutrition.

- Utilize whole-grain and wholemeal flours in pasta and dough production, achieving optimal texture, flavor, and nutritional density.
- Demonstrate proficiency in the use of alternative grains and cereals
- Identify complete and complementary protein sources across animal and plant-based foods.
- Construct balanced single-course meals by combining ingredients to achieve an adequate macronutrient profile.
- Evaluate the nutritional implications of dietary fats and the importance of reducing total fat intake in cooking.
- Assess the nutritional role of oily seeds (e.g., flax, chia, sesame, sunflower) as sources of essential fatty acids (omega-3 and omega-6).
- Identify factors affecting micronutrient stability and bioavailability, such as temperature, pH, and oxidation.
- Critically analyze raw foodism in light of scientific evidence, understanding both potential benefits and nutritional risks.
- Enhance flavor complexity in food preparation using wine, beer, herbs, and spices while maintaining nutritional integrity.
- Assess the physiological and social implications of alcohol consumption, balancing culinary use with health considerations.
- Apply herbs and spices not only for sensory appeal but also for their functional and therapeutic properties.
- Adapt recipes for special dietary requirements, employing ingredient substitutions that maintain nutritional balance and gastronomic quality.
- Incorporate innovative and alternative ingredients to diversify the flavor range and improve nutritional value.
- Understand the principles of vegetarian and vegan diets, ensuring adequate nutrient intake and culinary variety.
- Demonstrate competence in cooking with seaweeds and other nutrient-dense ingredients
- Integrate modern “superfoods” into recipes to address nutrient deficiencies and promote balanced dietary patterns.