

National Taiwan Normal University Online Course Teaching Plan

Instructions: According to **Article 6 of the Implementation Regulations Regarding Distance Learning by Universities**, Departments/Programs offering distance learning courses, shall present a course plan and submit it for approval by the university-level academic affairs committee. The course plan referred to in the preceding paragraph shall set forth learning objectives, the target student group, a course outline, teaching methods, interactive student-teacher discussion, grading and course requirements. The course plan shall be posted on the Internet.

1. **Chinese Course Name:** 分子營養學

2. **English Course Name:** Molecular Nutrition

3. **Course start date:** Spring (Fall, Spring, or Summer) semester of 2025 (yyyy)

4. **Course review submission record**(☒ if applicable):

☐ (1) It is a new online course or an existing face-to-face course switching to online course in this semester

☒ (2) It is an existing online course; the latest University's Course Committee approval was in the Fall semester of 2024 (academic year)

☐ (2. 1) The 5-year validity period has expired; a new application is required.

☐ (2. 2) In case of a major change in the original approved course or if the revision ratio exceeds 30%, reapplication is required.

5. **Basic Course Information** (☒ if applicable)

(1)	Instructor Name & Title	Chun-Li Su, Professor 蘇純立教授
(2)	Instructor Sources	<input checked="" type="checkbox"/> Appointed by Departments <input type="checkbox"/> Appointed by General Education Center <input type="checkbox"/> Both of Above <input type="checkbox"/> Others:
(3)	College/Department/Center	Graduate Program of Nutrition Science/Undergraduate Program of Nutrition Science
(4)	School System	<input type="checkbox"/> Undergraduate Program <input type="checkbox"/> Master's Program <input checked="" type="checkbox"/> BA/MA Joint Course <input type="checkbox"/> MA/PhD Joint Course <input type="checkbox"/> PhD Program <input type="checkbox"/> Continuing Education Master's Program
(5)	Program Type	<input checked="" type="checkbox"/> Full-time Program <input type="checkbox"/> Part-time Program <input type="checkbox"/> Others:
(6)	Course Type	<input type="checkbox"/> Common Courses <input type="checkbox"/> General Courses <input type="checkbox"/> School Required Courses <input checked="" type="checkbox"/> Professional Courses <input type="checkbox"/> Educational Courses <input type="checkbox"/> Other:
(7)	Required Courses	<input type="checkbox"/> University-required <input type="checkbox"/> College-required <input type="checkbox"/> Graduate Institute-required <input checked="" type="checkbox"/> Department-required <input type="checkbox"/> Others:
(8)	Course Duration	<input checked="" type="checkbox"/> One Semester (half year) <input type="checkbox"/> Two Semesters (one year) <input type="checkbox"/> Others:
(9)	Required/Elective Course	<input type="checkbox"/> Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/> Others:
(10)	Course Credits	2

(11)	Average of Face-to-Face Teaching Hours Per Week	<u>2</u> hour(s)/week (Divide the total "face-to-face teaching" hours, including the hours of face-to-face teaching and synchronous teaching, by the total number of course weeks.)
(12)	Number of Classes	1
(13)	Estimated Total Number of Students	50
(14)	EMI Courses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
(15)	Type of Cooperation with Domestic/Foreign Universities (omit if inapplicable)	1. Cooperative University: <u>Mississippi State University, USA</u> ; Department/Institute: Department of Food Science, Nutrition and Health Promotion Instructor Name: <u>Wen-Hsing Cheng</u> ; Course Name: <u>Molecular Nutrition</u> ; Number of Students: <u>20</u> 2. <input type="checkbox"/> Partner University <input type="checkbox"/> Dual-Degree Program <input checked="" type="checkbox"/> Global Virtual Classroom Course <input checked="" type="checkbox"/> Others: <u>Department-required professional course</u>
(16)	Course Platform Website (asynchronous teaching is required)	NTNU online learning platform: https://moodle.ntnu.edu.tw/
(17)	Syllabus Website	http://courseap.itc.ntnu.edu.tw/acadmOpenCourse/index.jsp

6. Course Teaching Design and Implementation Method

(1)	Course Goals	<p>Spring 2025: This is a co-taught course among Texas Woman's University (TWU), National Taiwan Normal University (NTNU), and National Taiwan University (NTU). Faculty and students in these universities will participate in the course via videoconferencing. The emerging discipline of molecular nutrition encompasses nutritional biochemistry, nutritional genomics, nutritional metabolomics, and epigenetics. The course focuses on the effects of diet and nutrients on an individual's genome and metabolism, and how the molecular events affect human health. This course is a lecture course designed to acquaint senior undergraduate and graduate students with current concepts, knowledge and strategies for understanding molecular nutrition.</p> <p>Spring 2025: February 17 to May 9; Monday and Friday 8:00 AM-10:00 AM.</p> <ul style="list-style-type: none"> - Classroom: Room 101, Cheng Building, main campus of NTNU 校本部（和平東路一段162號）誠101教室 - The student will know the areas of molecular nutrition. - The student will learn the mechanisms by which nutrients and dietary components regulate gene expression at genomic, transcriptional, and translational levels. - The student will be familiar with the nutritional control on optimal human health.
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		- The student will be aware of the impact of nutrients and dietary components on human genetic diseases.						
(2)	Target Student Group	Senior undergraduate and graduate students						
(3)	Prerequisite(s)	Basic knowledge of nutrition science, research, and nutrition-related research						
(4)	Course Content Outline:							
	Week	Topics (If there are multiple instructors, please specify instructor names in each week)	Learning Objectives (From the perspective of students)	Teaching Interactive Design (Multiple choices allowed)	Testing/Evaluation Activities (Multiple choices allowed. Choose “None” if not designed for the week.)	Teaching Method and Hours (fill-in the number of hours, omit if none)		
						Face-to-Face Teaching	Distance learning	
							Synchro nous	Asynchr onous
	1	2/17 Introduction	Knowing each other and course introduction	<input checked="" type="checkbox"/> Topic discussion <input type="checkbox"/> Group discussion <input type="checkbox"/> Peer review <input type="checkbox"/> Instructor feedback <input type="checkbox"/> Others: _____	<input checked="" type="checkbox"/> Tests <input type="checkbox"/> Assignments <input type="checkbox"/> _____ exam <input type="checkbox"/> _____ report <input type="checkbox"/> Others: _____ <input type="checkbox"/> None		2	
	2	2/21 Molecular nutrition and aging	Being aware of the impact of nutrition on aging	<input checked="" type="checkbox"/> Topic discussion <input type="checkbox"/> Group discussion <input type="checkbox"/> Peer review <input type="checkbox"/> Instructor feedback <input type="checkbox"/> Others: _____	<input checked="" type="checkbox"/> Tests <input type="checkbox"/> Assignments <input type="checkbox"/> _____ exam <input type="checkbox"/> _____ report <input type="checkbox"/> Others: _____ <input type="checkbox"/> None		2	
	3	2/24 Maternal nutrition	Learning the biochemistry and epigenetics of maternal nutrition	<input checked="" type="checkbox"/> Topic discussion <input type="checkbox"/> Group discussion <input type="checkbox"/> Peer review <input type="checkbox"/> Instructor feedback <input type="checkbox"/> Others: _____	<input checked="" type="checkbox"/> Tests <input type="checkbox"/> Assignments <input type="checkbox"/> _____ exam <input type="checkbox"/> _____ report <input type="checkbox"/> Others: _____ <input type="checkbox"/> None		2	
	4	3/03 Nutrition programming and microbiota	Being familiar with the microbiota on optimal human health	<input checked="" type="checkbox"/> Topic discussion <input type="checkbox"/> Group discussion <input type="checkbox"/> Peer review <input type="checkbox"/> Instructor feedback <input type="checkbox"/> Others: _____	<input checked="" type="checkbox"/> Tests <input type="checkbox"/> Assignments <input type="checkbox"/> _____ exam <input type="checkbox"/> _____ report <input type="checkbox"/> Others: _____ <input type="checkbox"/> None		2	
	5	3/07 Molecular	Knowing the	<input checked="" type="checkbox"/> Topic discussion	<input checked="" type="checkbox"/> Tests		2	

		biology of selenium	biochemistry of selenium	<input type="checkbox"/> Group discussion <input type="checkbox"/> Peer review <input type="checkbox"/> Instructor feedback <input type="checkbox"/> Others:_____	<input type="checkbox"/> Assignments <input type="checkbox"/> _____ exam <input type="checkbox"/> _____ report <input type="checkbox"/> Others:_____			
	6	3/17 Signaling transduction in cancer cell death by nutraceutical compounds	Being aware of the impact of nutraceutical compounds on cancer	<input checked="" type="checkbox"/> Topic discussion <input type="checkbox"/> Group discussion <input type="checkbox"/> Peer review <input type="checkbox"/> Instructor feedback <input type="checkbox"/> Others:_____	<input checked="" type="checkbox"/> Tests <input type="checkbox"/> Assignments <input type="checkbox"/> _____ exam <input type="checkbox"/> _____ report <input type="checkbox"/> Others:_____		2	
	7	3/21 Epigenetic regulation	Learning the control of genes by epigenetics	<input checked="" type="checkbox"/> Topic discussion <input type="checkbox"/> Group discussion <input type="checkbox"/> Peer review <input type="checkbox"/> Instructor feedback <input type="checkbox"/> Others:_____	<input checked="" type="checkbox"/> Tests <input type="checkbox"/> Assignments <input type="checkbox"/> _____ exam <input type="checkbox"/> _____ report <input type="checkbox"/> Others:_____		2	
	8	3/28 Molecular anticancer mechanisms of nutraceutical compounds	Learning the mechanisms by which nutraceutical compounds regulate gene expression	<input checked="" type="checkbox"/> Topic discussion <input type="checkbox"/> Group discussion <input type="checkbox"/> Peer review <input type="checkbox"/> Instructor feedback <input type="checkbox"/> Others:_____	<input checked="" type="checkbox"/> Tests <input type="checkbox"/> Assignments <input type="checkbox"/> _____ exam <input type="checkbox"/> _____ report <input type="checkbox"/> Others:_____		2	
	9	3/31 Folate nutrition in cancer prevention and prognosis: from basic research to clinical application	Learning the biochemistry of folate	<input checked="" type="checkbox"/> Topic discussion <input type="checkbox"/> Group discussion <input type="checkbox"/> Peer review <input type="checkbox"/> Instructor feedback <input type="checkbox"/> Others:_____	<input checked="" type="checkbox"/> Tests <input type="checkbox"/> Assignments <input type="checkbox"/> _____ exam <input type="checkbox"/> _____ report <input type="checkbox"/> Others:_____		2	
	10	4/07 Nutrient excess and diabetes	Being familiar with the nutrient excess on diabetes	<input checked="" type="checkbox"/> Topic discussion <input type="checkbox"/> Group discussion <input type="checkbox"/> Peer review <input type="checkbox"/> Instructor feedback <input type="checkbox"/> Others:_____	<input checked="" type="checkbox"/> Tests <input type="checkbox"/> Assignments <input type="checkbox"/> _____ exam <input type="checkbox"/> _____ report <input type="checkbox"/> Others:_____		2	

	11	4/14 Foodomics	Learning the genomics and metabolomics of foods	<input checked="" type="checkbox"/> Topic discussion <input type="checkbox"/> Group discussion <input type="checkbox"/> Peer review <input type="checkbox"/> Instructor feedback <input type="checkbox"/> Others: _____	<input checked="" type="checkbox"/> Tests <input type="checkbox"/> Assignments <input type="checkbox"/> _____ exam <input type="checkbox"/> _____ report <input type="checkbox"/> Others: _____ <input type="checkbox"/> None		2	
	12	4/18 Lipid metabolism	Being familiar with the Biochemical processes and signaling cascades of lipid	<input checked="" type="checkbox"/> Topic discussion <input type="checkbox"/> Group discussion <input type="checkbox"/> Peer review <input type="checkbox"/> Instructor feedback <input type="checkbox"/> Others: _____	<input checked="" type="checkbox"/> Tests <input type="checkbox"/> Assignments <input type="checkbox"/> _____ exam <input type="checkbox"/> _____ report <input type="checkbox"/> Others: _____ <input type="checkbox"/> None		2	
	13	4/25 How bacteria use riboswitches to regulate their metabolism and adapt to the environment	Being familiar with regulation of riboswitches in bacteria	<input checked="" type="checkbox"/> Topic discussion <input type="checkbox"/> Group discussion <input type="checkbox"/> Peer review <input type="checkbox"/> Instructor feedback <input type="checkbox"/> Others: _____	<input checked="" type="checkbox"/> Tests <input type="checkbox"/> Assignments <input type="checkbox"/> _____ exam <input type="checkbox"/> _____ report <input type="checkbox"/> Others: _____ <input type="checkbox"/> None		2	
	14	4/28 Carbohydrate building block as nutrients and beyond	Learning the carbohydrate building block	<input checked="" type="checkbox"/> Topic discussion <input type="checkbox"/> Group discussion <input type="checkbox"/> Peer review <input type="checkbox"/> Instructor feedback <input type="checkbox"/> Others: _____	<input checked="" type="checkbox"/> Tests <input type="checkbox"/> Assignments <input type="checkbox"/> _____ exam <input type="checkbox"/> _____ report <input type="checkbox"/> Others: _____ <input type="checkbox"/> None		2	
	15	5/02 Oral presentation	Presenting the mechanism of nutrients and dietary components and their impact on health	<input checked="" type="checkbox"/> Topic discussion <input type="checkbox"/> Group discussion <input type="checkbox"/> Peer review <input checked="" type="checkbox"/> Instructor feedback <input checked="" type="checkbox"/> Others: <u>Group presentation</u>	<input type="checkbox"/> Tests <input checked="" type="checkbox"/> Assignments <input type="checkbox"/> _____ exam <input type="checkbox"/> _____ report <input checked="" type="checkbox"/> Others: <u>Group presentation</u> <input type="checkbox"/> None		2	
	16	5/09 Exam	Evaluating the knowledge and skills obtained in the course	<input type="checkbox"/> Topic discussion <input type="checkbox"/> Group discussion <input type="checkbox"/> Peer review <input type="checkbox"/> Instructor feedback <input checked="" type="checkbox"/> Others: <u>Exam</u>	<input type="checkbox"/> Tests <input type="checkbox"/> Assignments <input checked="" type="checkbox"/> <u>Final</u> exam <input type="checkbox"/> _____ report <input checked="" type="checkbox"/> Others: <u>Term paper</u>	2		

					<input type="checkbox"/> None			
(5)	Teaching Methods	<p>(<input checked="" type="checkbox"/> if included; multiple choices allowed)</p> <p><input checked="" type="checkbox"/> 1. Provide primary and supplementary materials for online courses</p> <p><input checked="" type="checkbox"/> 2. Provide face-to-face teaching, number: <u> 1 </u> time(s), total hour(s): <u> 2 </u> hour(s)</p> <p><input checked="" type="checkbox"/> 3. Provide synchronous teaching, number: <u> 15 </u> time(s), total hour(s): <u> 30 </u> hour(s)</p> <p><input type="checkbox"/> 4. Provide asynchronous teaching, number: <u> </u> time(s), total hour(s): <u> </u> hour(s)</p> <p><input checked="" type="checkbox"/> 5. Provide topic discussion activities</p> <p><input checked="" type="checkbox"/> 6. Provide cooperative learning activities between students</p> <p><input type="checkbox"/> 7. Mutual learning through students' works</p> <p><input type="checkbox"/> 8. Others: (please specify)</p>						
(6)	Learning Management System (moodle)	<p>Which moodle functions are used in this course? (<input checked="" type="checkbox"/> if included; multiple choices allowed)</p> <p>Note: For teachers and students from domestic or foreign universities who are participating in joint programs that require access to Moodle, please have the course instructor contact the platform manager at extensions 5673 or 5579. E-mail: ellearn@ntnu.edu.tw</p> <p><input checked="" type="checkbox"/> 1. Personal data</p> <p><input checked="" type="checkbox"/> 2. Course information</p> <p><input checked="" type="checkbox"/> 3. Latest News release & browse</p> <p><input checked="" type="checkbox"/> 4. Course materials viewing & download</p> <p><input checked="" type="checkbox"/> 5. Grade system management & inquiry (omit if inapplicable)</p> <p><input type="checkbox"/> 6. Perform online testing (omit if inapplicable)</p> <p><input checked="" type="checkbox"/> 7. Learning information</p> <p><input type="checkbox"/> 8. Interactive learning design (chat room or discussion area)</p> <p><input type="checkbox"/> 9. Other related functions: (please specify)</p>						
(7)	Public Information about Interactive Teaching	<p>Instructor Profile and Published Works (webpage link instructions can be attached):</p> <p>https://www.nutrition.ntnu.edu.tw/index.php/faculty/chunlisu/</p> <p>Instructor E-mail: chunlisu@ntnu.edu.tw</p> <p>Online Office Hours (at least 1 hour per week): Monday and Friday 10:00 AM-10:30 AM</p> <p>Teaching Assistant's Name/E-mail (omit if inapplicable):</p> <p>Others(omit if inapplicable): Facebook</p>						

(8)	Course Material Production	<input checked="" type="checkbox"/> if included; multiple choices allowed) <input checked="" type="checkbox"/> 1. Provide appropriate reminders of key points <input checked="" type="checkbox"/> 2. Provide teaching-related examples <input checked="" type="checkbox"/> 3. Provide teaching-related exercises and reflective activities <input checked="" type="checkbox"/> 4. Provide supplementary teaching materials or online resources <input checked="" type="checkbox"/> 5. Provide instructions for self-directed learning <input checked="" type="checkbox"/> 6. Learning objectives are consistent with course goals <input type="checkbox"/> 7. Others:
(9)	Assignment Submission Method	<input checked="" type="checkbox"/> if included; multiple choices allowed) <input checked="" type="checkbox"/> 1. Provide online assignment content description <input checked="" type="checkbox"/> 2. Assignment file upload and download <input type="checkbox"/> 3. Others:
(10)	Assessment	<p>※ To comply with the spirit of online course design, please understand and agree to the contents of the following 3 items, and provide detailed description:</p> <input checked="" type="checkbox"/> 1. The course can provide evaluation results and feedback for each learning evaluation <input checked="" type="checkbox"/> 2. The evaluation has taken the students online learning history and participation level into account <input checked="" type="checkbox"/> 3. The percentage of each score is explained in detail below: (Evaluation methods, and their total score percentage) (1) EXAM 50% (2) DISCUSSION 10% Papers pertaining to the discussion will be distributed prior to the discussion. Reading the articles and participating in discussion are mandatory. (3) PRESENTATION (as a team) 20% A. Each team will give a presentation. A team must be composed of students from all universities. A Facebook group site is generated for facilitating the international interactions. B. Presentation: Background, methods, results, conclusion. (4) TERM PAPER (individual) 20% A. The term paper can be based on the same subject of the presentation. Although the presentation is team-work, the term paper is written individually. B. <u>Due date: May 31, 11:59 PM.</u> C. Page limit: 10-12 pages of main text using the numerical style of references (e.g. 1-3, 4), figures included but references excluded. D. Font: use Arial, Helvetica, Palatino Linotype, or Times New Roman, size 11 or larger

		<p>E. Type density: no more than 15 characters per inch, and no more than six lines per inch</p> <p>F. Margin: one-half inch margins for all pages.</p> <p>G. References: at least 10. At least 8 of them must be original research papers.</p> <p>H. The paper should follow the style of the Nature Review series, containing abstract, main text with subtitles and conclusion remarks. “Boxes” and glossaries are not required. Figures and tables are not required but encouraged. An example to follow: http://www.nature.com/nrm/journal/v8/n5/pdf/nrm2161.pdf</p> <p>I. Direct copy-and-paste from the World Wide Web in any forms is prohibited.</p> <p>J. Based on a 100 point, deduction will be made should the followings occur:</p> <ul style="list-style-type: none"> - Page numbers do not meet the guidance (2 points/page). - Font, type density, margin and reference requirements do not meet (2 points/item). - Less than 10 references cited (1 point/ reference) - Wrong citations (2 points/citation) - Typos, grammatical errors and nomenclature (up to 5 points total). - Lack of 1) clarity, 2) in-depth analysis and up-to-the-minute knowledge, and 3) future directions/perspectives (up to 5 points for each item)
(11)	Precautions for Class:	Due to the differences in the dates of classes begin and classes end among universities, the classes will be talk on Monday and Friday 8:00 AM-10:00 AM from February 17 to May 9.
(12)	<p><u>Observe intellectual property rights in the creation of course content.</u></p> <p>※ Pay attention to any infringement of copyright or other rights in the creation of relevant teaching content.</p> <p>※ If the copyright for any part of the teaching content is owned by others and authorization has been obtained from the rights holder, please indicate the source of the material.</p>	