

UC Davis Food Science and Technology

Guide to Restricted Electives

What is a Restricted Elective?

Restricted Electives (REs) are a group of upper-division courses totaling a minimum of 14 units, which Food Science students select to tailor their degree. These courses must be completed with a letter grade. REs allow students to customize their Food Science education by exploring specific areas of interest in greater depth. These areas include Food Chemistry and Biochemistry, Food Safety and Microbiology, Brewing, Food Processing and Preservation, Sensory and Consumer Science, and Food Sustainability.

How to pick your Restricted Electives?

Restricted Elective are chosen to best fit your interests in Food Science. Anticipate what courses will prepare you for the career that you want after you graduate from UC Davis. What courses or combination of courses would you like to highlight in your application to your future employer, professional or graduate school? Thinking about these questions will help you articulate and rationalize your choice of Restricted Electives. A carefully-chosen, well-balanced set of Restricted Electives can enhance the appeal of your career portfolio.

When to start picking your Restricted Electives?

Begin planning your Restricted Electives (REs) as soon as you declare the Food Science major. Explore the UC Davis General Catalog or Course Supplement (<http://catalog.ucdavis.edu/index.html>) to identify courses that interest you. Seek guidance from Food Science Undergraduate Advisors, Peer Advisors, and fellow students to learn about the range of available courses. You can also reach out to course instructors and request syllabi to gain a deeper understanding of the course content. Discuss your RE options with your Food Science Faculty Advisor. Based on your career goals, they might recommend courses in areas such as advanced statistics, microbiology, or chemistry. While faculty advisors may not have detailed knowledge of every course, they can help steer you in the right direction. Create a preliminary list of REs and revise it as you discover new courses. During your sophomore year, you will meet with the Undergraduate Staff Advisor to review your academic progress, finalize your REs, and integrate them into your personalized academic plan.

Rules and decisions on FST Restricted Electives

Students must meet with their Undergraduate Staff Advisor annually to develop and update their academic plan. As part of this process, Restricted Electives (REs) will be reviewed and approved. Approval is contingent on the coherence and relevance of the REs to the student's overall academic and career goals. REs may not be approved if, for example, there is no clear justification or if the selected courses lack a cohesive connection.

Since the approval of REs is evaluated based on the complete list rather than individual courses, advising staff typically do not provide feedback on the eligibility of single courses. Any non-approved REs will be further reviewed by the Food Science Master Advisor and/or the Teaching Committee.

Pre-Approved Eligible Courses

Appendix A provides a list of pre-approved upper-division courses (100–189) from the UC Davis General Catalog or Course Supplement (<http://catalog.ucdavis.edu/index.html>) that are eligible as Restricted Electives for the Food Science major. These courses can be included in your academic plan without requiring additional approval from the FST Advising Office. However, any course from Appendix A taken with a Pass/No Pass (P/NP) grading option will not qualify as a Restricted Elective. To include these courses as part of your Restricted Electives, you must complete them with a letter grade.

Please note that Appendix A is subject to change, and courses may be added or removed. The most current version of Appendix A is available through the FST Advising Office or online at: <https://foodscience.ucdavis.edu/academic-programs/undergraduate/bs-major-requirements>. There are several reasons why courses are not listed in Appendix A. Such courses may still be eligible as a Food Science Restricted Elective, but by exception only, as explained below.

1. Study Abroad

Any food related course that will be taken as part of a study abroad program will be considered on a case by case basis. Contact the Food Science Major Advisor for more information.

2. It is a variable-unit upper-division course (i.e. 192 and 199).

The FST degree allows a total of 6 units of 192 (internship) and 199 (research) courses as part of Restrictive Electives. These courses are graded on a P/NP basis only. Students must complete a research or internship contract in order to obtain FST 192/199 units. Contact the Food Science Major Advisor for more information.

Overview of Approved Restricted Electives

IMPORTANT NOTE:

Make sure to check Course Prerequisites & registration restrictions. Some courses can only be added by majors of that department in Pass 1.
All Restricted Electives must be taken for a letter grade. P/NP will NOT be accepted. Courses may be selected from different categories; minimum 14 units required.
Please consult your assigned faculty advisor for guidance with RE course selection.

Chemistry and Biochemistry		
Course #	Course Title	Units
CHE 104	Forensic Analytical Chemistry	3
CHE 107A	Physical Chemistry for the Life Sciences	3
CHE 107B	Physical Chemistry for the Life Sciences	3
CHE 108	Molecular Biochemistry	3
CHE 110A	Physical Chemistry: Intro to Quantum Mechanics	4
CHE 110B	Properties of Atoms and Molecules	4
CHE 110C	Thermodynamics, Equilibria, and Kinetics	4
CHE 124A	Inorganic Chemistry: Fundamentals	3
CHE 124B	Inorganic Chemistry: Main Group Block	3
CHE 124C	Inorganic Chemistry: Block Elements	3
CHE 129B	Organic Chemistry Lab	2
CHE 129C	Organic Chemistry Lab	2
CHE 131	Modern Methods of Organic Synthesis	3
CHE 150	Chemistry of Natural Products	3
FST 123	An Introduction to Enzymology	3
FST 123L	An Introduction to Enzymology Lab	2
FST 128	Food Toxicology	3
BIS 101	Genes & Gene Expression	4

Food Systems and Sustainability		
Course #	Course Title	Units
ARE 120	Agricultural Policy	4
ARE 121	Econ. of Agricultural Sustainability	4
ARE 147	Resource and Environmental Policy Analysis	3
EBS 135	Bioenvironmental Engineering	4
EBS 144	Groundwater Hydrology	4
ECI 123	Urban Systems and Sustainability	4
ESP 110	Principals of Environmental Science	4
ESP 162	Environmental Policy	4
ESP 165	Climate Policy	3
ESP 167	Energy Policy	4
ESP 169	Water Policy and Politics	3
ESP 175	Natural Resource Economics	4
PLS 101	Agriculture & the Environment	3
PLS 150	Sustainability and Agroecosystem Management	4
PLS 190	Seminar on Alternatives in Agriculture	2
SOC 160	Sociology of the Environment	4
EBS 145	Irrigation & Drainage Systems	4
ECH 171	Chemical Engineering Principles in Food Processing	4

Nutrition		
Course #	Course Title	Units
NUT 105	Nutrition through the Life Cycle	3
NUT 111AY	Intro to Nutrition and Metabolism	3
NUT 111B	Recommendations and Standards for Human Nutrition	2
NUT 112	Nutritional Assessment	4
NUT 114	Developmental Nutrition	4
NUT 116A	Clinical Nutrition	3
NUT 116B	Clinical Nutrition	3
NUT 117	Experimental Nutrition	6
NUT 118	Community Nutrition	4
NUT 120AN	Nutritional Anthropology	4

NAS 123	Native Foods & Farming of the Americas	4
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Sensory and Consumer Science		
Course #	Course Title	Units
ECS 124	Theory and Practice of Bioinformatics	4
FST 109	Principles of Quality Assurance in Food Processing	3
FST 160	Food Product Development	4
STA 106	Applied Statistical Methods: Analysis of Variance	4
STA 141A	Fundamentals of Statistical Data Science	4
VEN 125	Wine Types and Sensory Evaluation	2
FST 159	New Food Product Idea	3
VEN 124	Wine Production	2

Microbiology		
Course #	Course Title	Units
FST 102A	Malting and Brewing Science	4
FST 109	Principals of Quality Assurance in Food Processing	3
FST 114	Fermented Foods	4
FST102B	Malting and Brewing Science	4
MCB 120	Molecular Biology & Biochemistry Lab	3
MCB 120L	Molecular Biology and Biochemistry Lab	3
MCB 121	Advanced Molecular Biology	3
MMG 162	General Virology	3
MMG 170	Yeast Molecular Genetics	3
PLP 148	Introductory Mycology	4
PLS 174	Microbiology and Safety of Fresh Fruit and Vegetables	3
PMI 127	Medical Bacteria and Fungi	3
VEN 128	Wine Microbiology	2
VEN 128L	Wine Microbiology Lab	2
MMG 120	Microbial Ecology	3

Processing and Preservation		
Course #	Course Title	Units
EBS 125	Heat Transfer in Biological Systems	4
EBS 127	Mass Transfer and Kinetics in Biological Systems	4
EBS 130	Modeling of Dynamic Processes in Biological Systems	4
EBS 161	Kinetics and Bioreactor Designs	4
ECH 140	Mathematical Methods in Biochemical and Chemical Engineering	4
ECH 141	Fluid Mechanics for Biochemical and Chemical Engineers	4
ECH 142	Heat Transfer for Biochemical and Chemical Engineers	4
VEN 135	Wine Technology and Winery Systems	4
VEN 140	Distilled Beverage Technology	3
ECH 160	Fundamentals of Biomufacturing	3

Technology Management		
Course #	Course Title	Units
MGT 120	Introduction to Information Systems	4
MGT 140	Introduction to Marketing & Data Analytics	4
MGT 150	Introduction to Management	4
MGT 151	Management of Innovation & Entrepreneurship	4
MGT 160	Introduction to Corporate Finance	4
MGT 170	Management Accounting and Control	4
MGT 180	Introduction to Operations Management	4

Brewing Science Option		
Course #	Course Title	Units
*FST 102A	Malting and Brewing Science	4
*FST 102B	Practical Malting and Brewing Science	4
*FST 102C	Advanced Brewing Science	2
*FST 123	An Introduction to Enzymology	3
Approved Restricted Electives for the Brewing Science Option		
FST 109	Principals of Quality Assurance in Food Processing	3
FST 114	Fermented Foods	4
FST 123L	An Introduction to Enzymology Lab	2
FST 159	New Food Product Idea	3
FST 160	Food Product Development	4