Articulation Agreement by Major

Effective during the 2022-2023 Academic Year

To: University of California, Merced	From: De Anza College
2022-2023 General Catalog, Semester	2022-2023 General Catalog, Quarter

Environmental Engineering, B.S.

ADMISSIONS MAJOR SELECTION CRITERIA

Thank you for your interest in UC Merced!

For admission to the **Environmental Engineering, B.S.** major, students must earn an overall transferrable GPA of 2.4 or better, and complete classes articulated with the following UC Merced courses by the end of spring term prior to fall enrollment or by the end of fall term prior to spring enrollment. All major preparation courses requires a "C" or better.

REQUIRED major preparation courses:

- CHEM 002
- MATH 021, MATH 022, MATH 023, MATH 024
- PHYS 008 & PHYS 008L, PHYS 009 & PHYS 009L

Additional Major Preparation:

- Chemistry Course: * CHEM 010
- Computing Course: ME 021 OR CSE 019
- Engineering Fundamentals Course: ENGR 057 (Only Lower Division courses listed)
  - Additional Fundamental Courses: Choose 2: ENGR 045, ENGR 065, ENGR 151 (Please see Catalog for other courses that can full this area)
- Biological or Environmental Systems Science Course: BIO 005 OR ESS 001 OR ESS 005
- Additional Lower Division Courses: ENVE 020 and Math 032

* CHEM 010 (And MATH 022) is a prerequisite course to ENVE 100 (Environmental Engineering Chemistry) which is a required upper division course for the major. Completing the course before transfer can help speed up time to graduation.

AP Exam Score & Course Exemptions

- An AP Chemistry score of 5 exempts CHEM 002 and CHEM 010
- An AP Mathematics: Calculus AB score of 4 or 5 exempts Math 021
- An AP Mathematics: Calculus BC score of 3 exempts MATH 021
- An AP Mathematics: Calculus BC score of 4 or 5 exempts Math 021 and Math 022
- An AP Mathematics: Calculus BC Subscore AB score 3 or higher exempts Math 021
- An AP Physics: Physics C: Mechanics score of 5 exempts PHYS 008 and PHYS 008L
- An AP Environmental Sciences score of 4 or 5 exempts ESS 001

UC Merced Advance Placement (AP) and International Baccalaureate (IB) credit policies are detailed in the link below:
Advance Placement (AP) and International Baccalaureate (IB) Examinations

IMPORTANT TRANSFER INFORMATION

In addition to the Major Selection Criteria, all Upper-Division Transfer applicants must meet minimum University of California admissions requirements. Visit https://admissions.ucmerced.edu/transfer/requirements for more specific UC Merced admissions information.

Prior to Transferring to UC Merced, please be advised of the following for Junior Transfers:

1) WRI 001 and WRI 010 are admissions requirements: In most situations, WRI 001 is fulfilled by IGETC 1A English Composition and WRI 010 is fulfilled by IGETC 1B Critical Thinking/English Composition. However best practice is to complete the articulated course for WRI 001 and WRI 010. Please scroll towards the bottom of the agreement to find the articulation for each course.

2) Transfer Admissions Guarantee (TAG): UC Merced is one of the six UC's that offers Transfer Admissions Guarantee. Please visit the TAG website for more information: https://admissions.ucmerced.edu/transfer/tag

3) General Education (GE Requirements): While general education is not required for admission, it can help speed up your time to graduation once you transfer to UC Merced. We highly recommend reviewing the **Transfer Students: Satisfying General Education** page in the catalog for a more extensive explanation of the requirements.

Please note the School of Engineering strongly discourages IGETC, but accepts it; students are encouraged to focus primarily on lower division major preparation and fulfilling UCM minimum admissions requirements. If you elect to complete IGETC, the courses may double count with the major courses listed below. Please visit your Community College Counselor to learn more.

4. This agreement displays all lower-division (or Major Preparation) courses required in the major. UC Merced courses on the left, approved (articulated) transfer courses to the right.

5. Changes to this Agreements: Major requirements are subject to change from one academic year to the next. Newly-articulated courses are added

on a rolling basis, and articulated courses can be revised. Visit ASSIST every semester for the latest information and consult with an Academic Counselor at your institution on a regular basis.

For more questions about admissions, please email: transfer@ucmerced.edu.

ABOUT THIS MAJOR

The undergraduate major in Environmental Engineering prepares students for careers in both industry and government agencies concerned with managing air quality, water quality and supply, energy, public health and the welfare of the total environment. The program is also a good foundation for further study in Earth science, engineering, business, management, law and public health. The curriculum provides students with a quantitative understanding of the physical, chemical and biological principles that control air, water and habitat quality and sustainability on Earth along with expertise in the design, development, implementation and assessment of engineering solutions to environmental problems.

UC Merced emphasizes a highly interdisciplinary approach to environmental engineering, combining a strong theoretical foundation with field studies, laboratory experiments and computational simulations. Core courses within the major provide students with a firm foundation in the physical and life sciences and the ways that they apply to energy, hydrology, and air- and water-quality issues. Emphasis areas allow students the flexibility to study in more depth by following tracks developed in consultation with their academic adviser(s). The main areas of emphasis for Environmental Engineering at UC Merced are hydrology, water quality, air pollution and sustainable energy.

Visit the 22-23 catalog page for the Lower Division and Upper Division requirements for the major.

The Environmental Engineering program at UC Merced is accredited by the Engineering Accreditation Commission of ABET, abet.org.

MAJOR PREPARATION COURSES REQUIRED FOR TRANSFER

Minimum grade required: C or better
Required for admission

CHEM 002 - General Chemistry I (4.00) ←

CHEM 1A - General Chemistry (5.00)
--- And ---
CHEM 1B - General Chemistry (5.00)

--- Or ---

CHEM 1A - General Chemistry (5.00)
--- And ---
CHEM 1BH - General Chemistry - HONORS (5.00)

--- Or ---

CHEM 1AH - General Chemistry - HONORS (5.00)
--- And ---
CHEM 1BH - General Chemistry - HONORS (5.00)

--- Or ---

CHEM 1AH - General Chemistry - HONORS (5.00)
--- And ---
CHEM 1B - General Chemistry (5.00)

--- And ---

MATH 021 - Calculus I for Physical Sciences & Engineering (4.00) ←

MATH 1A - Calculus (5.00)
--- And ---
MATH 1B - Calculus (5.00)

--- Or ---

MATH 1AH - Calculus - HONORS (5.00)
--- And ---
MATH 1BH - Calculus - HONORS (5.00)

MATH 022 - Calculus II for Physical Sciences & Engineering (4.00)	←	**MATH 1B** - Calculus (5.00) **--- And ---** **MATH 1C** - Calculus (5.00) **--- Or ---** **MATH 1BH** - Calculus - HONORS (5.00) **--- And ---** **MATH 1CH** - Calculus - HONORS (5.00)
MATH 023 - Vector Calculus (4.00)	←	**MATH 1C** - Calculus (5.00) **--- And ---** **MATH 1D** - Calculus (5.00) **--- Or ---** **MATH 1CH** - Calculus - HONORS (5.00) **--- And ---** **MATH 1DH** - Calculus - HONORS (5.00)
MATH 024 - Linear Algebra and Differential Equations (4.00)	←	**MATH 2A** - Differential Equations (5.00) **--- And ---** **MATH 2B** - Linear Algebra (5.00)

--- And ---

PHYS 008 - Introductory Physics I for Physical Sciences (3.00) **--- And ---** **PHYS 008L** - Introductory Physics I for Physical Sciences Lab (1.00)	←	**PHYS 4A** - Physics for Scientists and Engineers: Mechanics (6.00)
PHYS 009 - Introductory Physics II for Physical Sciences (3.00) **--- And ---** **PHYS 009L** - Introductory Physics II for Physical Sciences Lab (1.00)	←	**PHYS 4B** - Physics for Scientists and Engineers: Electricity and Magnetism (6.00) **--- And ---** **PHYS 4C** - Physics for Scientists and Engineers: Fluids, Waves, Optics and Thermodynamics (6.00)

ADDITIONAL MAJOR PREPARATION COURSE

Minimum grade required: C or better
Recommended to be completed prior to transfer

CHEM 010 - General Chemistry II (4.00)	←	**CHEM 1B** - General Chemistry (5.00) **--- And ---** **CHEM 1C** - General Chemistry and Qualitative Analysis (5.00) **--- Or ---** **CHEM 1BH** - General Chemistry - HONORS (5.00) **--- And ---** **CHEM 1CH** - General Chemistry and Qualitative Analysis - HONORS (5.00)

ENGINEERING FUNDAMENTALS COURSES

Minimum grade required: C or better
Only lower division courses listed

ENGR 057 - Statics and Dynamics (4.00) • *Recommended to be completed prior to transfer*	←	No Course Articulated

--- And ---

Select 2 Courses from the following

REFER TO CATALOG

ENGR 045 - Introduction to Materials (4.00) • *Recommended to be completed prior to transfer*	←	No Course Articulated
ENGR 065 - Circuit Theory (4.00) • *Recommended to be completed prior to transfer*	←	No Course Articulated
ENGR 151 - Strength of Materials (4.00)	←	No Course Articulated

COMPUTING COURSE

Minimum grade required: C or better
Recommended to be completed prior to transfer

ME 021 - Engineering Computing (4.00)	←	No Course Articulated
--- Or ---		
CSE 019 - Introduction to Computing (4.00)	←	**CIS 26A** - C as a Second Programming Language (4.50) --- Or --- **CIS 26B** - Advanced C Programming (4.50) • *Effective next fall, this course will no longer articulate* --- Or --- **CIS 22A** - Beginning Programming Methodologies in C++ (4.50) --- And --- **CIS 22B** - Intermediate Programming Methodologies in C++ (4.50) --- Or --- **CIS 22A** - Beginning Programming Methodologies in C++ (4.50) --- And --- **CIS 22BH** - Intermediate Programming Methodologies in C++ - HONORS (4.50) --- Or --- **CIS 27** - Programming in C++ for C/Java Programmers (4.50) --- Or --- **CIS 36A** - Introduction to Computer Programming Using Java (4.50) --- And --- **CIS 36B** - Intermediate Problem Solving in Java (4.50) --- Or --- **CIS 41A** - Python Programming (4.50)

BIOLOGICAL OR ENVIRONMENTAL SYSTEMS SCIENCE COURSE

Select 1 Course from the following

Minimum grade required: C or better
Recommended to be completed prior to transfer

BIO 005 - Concepts & Issues in Biology Today (4.00)	←	**BIOL 10** - Introductory Biology (5.00) --- Or --- **BIOL 10H** - Introductory Biology - HONORS (5.00)
ESS 001 - Introduction to Earth Systems Science (4.00)	←	No Course Articulated
ESS 005 - Introduction to Biological Earth Systems (4.00)	←	No Course Articulated

ADDITIONAL LOWER DIVISION COURSES

Minimum grade required: C or better

MATH 032 - Probability and Statistics (4.00)	←	**MATH 23** - Engineering Statistics (5.00)
ENVE 020 - Introduction to Environmental Science and Technology (4.00)	←	No Course Articulated

ACADEMIC WRITING - CHOOSE ONE COURSE FROM:

****REFER TO TOP OF AGREEMENT****
Minimum grade required: C or better

WRI 001 - Academic Writing (4.00) ←

ESL 5 - Advanced Composition and Reading (5.00)

--- Or ---

EWRT 1A - Composition and Reading (5.00)

--- Or ---

EWRT 1AH - Composition and Reading - HONORS (5.00)

--- Or ---

EWRT 1AS - Intensive Composition and Reading Stretch: First Quarter (5.00)

- *UC credit limitation applies; refer to UC-transferability list*

--- And ---

EWRT 1AT - Intensive Composition and Reading Stretch: Second Quarter (5.00)

- *UC credit limitation applies; refer to UC-transferability list*

COLLEGE READING AND COMPOSITION - CHOOSE ONE COURSE FROM:

****REFER TO TOP OF AGREEMENT****
Minimum grade required: C or better

WRI 010 - College Reading and Composition (4.00) ←

COMM 9 - Argumentation: Analysis of Oral and Written Communication (5.00)

--- Or ---

COMM 9H - Argumentation: Analysis of Oral and Written Communication - HONORS (5.00)

--- Or ---

EWRT 1B - Reading, Writing and Research (5.00)

--- Or ---

EWRT 1C - Literature and Composition (5.00)

--- Or ---

EWRT 2 - Critical Reading, Writing and Thinking (5.00)

--- Or ---

EWRT 2H - Critical Reading, Writing and Thinking - HONORS (5.00)

--- Or ---

PHIL 3 - Critical Thinking and Writing (5.00)

END OF AGREEMENT