ENVIRONMENTAL CHEMISTRY AND TECHNOLOGY, PH.D.

REQUIREMENTS

MINIMUM GRADUATE SCHOOL REQUIREMENTS

Review the Graduate School minimum academic progress and degree requirements (http://guide.wisc.edu/graduate/#policiesandrequirementstext), in addition to the program requirements listed below.

MAJOR REQUIREMENTS

MODE OF INSTRUCTION

Face to Face	Evening/ Weekend	Online	Hybrid	Accelerated
Yes	No	No	No	No

Mode of Instruction Definitions

Accelerated: Accelerated programs are offered at a fast pace that condenses the time to completion. Students typically take enough credits aimed at completing the program in a year or two.

Evening/Weekend: Courses meet on the UW–Madison campus only in evenings and/or on weekends to accommodate typical business schedules. Students have the advantages of face-to-face courses with the flexibility to keep work and other life commitments.

Face-to-Face: Courses typically meet during weekdays on the UW-Madison Campus.

Hybrid: These programs combine face-to-face and online learning formats. Contact the program for more specific information.

Online: These programs are offered 100% online. Some programs may require an on-campus orientation or residency experience, but the courses will be facilitated in an online format.

CURRICULAR REQUIREMENTS

Requirement	Detail
Minimum Credit Requirement	51 credits
Minimum Residence Credit Requirement	32 credits
Minimum Graduate Coursework Requirement	26 credits must be graduate-level coursework. Details can be found in the Graduate School's Minimum Graduate Coursework (50%) policy (https://policy.wisc.edu/library/UW-1244 (https://policy.wisc.edu/library/UW-1244/)).
Overall Graduate GPA Requirement	3.00 GPA required. This program follows the Graduate School's GPA Requirement policy (https://policy.wisc.edu/library/UW-1203 (https://policy.wisc.edu/library/UW-1203/)).
Other Grade Requirements	Students must earn a B or above in all courses counting toward degree requirements.
Assessments and Examinations	Doctoral students are required to take a comprehensive preliminary exam by the end of their fifth semester of study in the Ph.D. program. A final oral exam of the doctoral dissertation is required. Deposit of the doctoral dissertation in the Graduate School is required.
Language Requirements	No language requirements.
Graduate School Breadth Requirement	Doctoral students must complete a doctoral minor or graduate/professional certificate. Students will discuss minor and certificate options with the faculty advisor.

REQUIRED COURSES

Students are required to develop a plan of courses with their advisor.

All incoming EC&T students should have basic preparation in the fundamental areas of general, organic, physical and analytical chemistry. Students should also have previous coursework in the natural sciences, which can include botany, bacteriology, zoology, earth science, material science, biochemistry or engineering. Note that CIV ENGR 500 Water Chemistry or equivalent advanced course in Environmental Chemistry, is a prerequisite for many of the core EC&T courses. If these requirements have not been met prior to entering the program, this should be considered when planning the coursework.

Code	Title	Credits
Core Courses		
Environmental Inorganic Chemistry		
CIV ENGR 703	Environmental Geochemistry	1-3
or GEOSCI 875	Advanced Topics in Geology	
Environmental Organic Chemistry		
CIV ENGR/ M&ENVTOX/ SOIL SCI 631	Toxicants in the Environment: Sources, Distribution, Fate, & Effects	3
or CIV ENGR 704	Environmental Chemical Kinetics	
Air Chemistry		
CIV ENGR/ ATM OCN 701	The Chemistry of Air Pollution	2-3
or CHEM 629	Atmospheric Chemical Mechanisms	
Additional Coursework		
CIV ENGR 909	Graduate Seminar - Environmental Chemistry & Technology [1]	1
or CIV ENGR/ ATM OCN/ BOTANY/ ENVIR ST/ GEOSCI/ ZOOLOGY 911	Limnology and Marine Science Seminar	

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Students must enroll in CIV ENGR 909 Graduate Seminar - Environmental Chemistry & Technology or CIV ENGR/ATM OCN/BOTANY/ENVIR ST/GEOSCI/ZOOLOGY 911 Limnology and Marine Science Seminar each semester. Ph.D. students should present a seminar once per academic year, either fall or spring semester.

Graduate-Level Chemistry Requirement

Students must take two chemistry courses numbered 500 or above. A partial list of potential courses is included below. Other courses may be substituted for this requirement with approval of the student's academic advisor and the approval of the EC&T Academic Planning Committee.

Course options

Code	Title	Credits
Select two of the following:		
BIOCHEM 501	Introduction to Biochemistry	3
BIOCHEM 507	General Biochemistry I	3
BIOCHEM 508	General Biochemistry II	3-4
BIOCHEM 800	Practical Nuclear Magnetic Resonance Theory	2
BIOCHEM/ BOTANY 621	Plant Biochemistry	3
BIOCHEM 801	Biochemical Applications of Nuclear Magnetic Resonance	2
CBE 547	Introduction to Colloid and Interface Science	3
CHEM 524	Chemical Instrumentation	3
CHEM 561	Physical Chemistry	3
CHEM 565	Biophysical Chemistry	4
CHEM 605	Spectrochemical Measurements	3
CHEM 613	Chemical Crystallography	3
CHEM 624	Electrochemistry	2-3
CHEM 636	Topics in Chemical Instrumentation: Introduction to NMR	2
CHEM 728	Electronics for Chemical Instrumentation	3
CHEM 637	Topics in Chemical Instrumentation: Advanced Methods in NMR	1-2
CHEM 652	Chemistry of Inorganic Materials	3
CHEM 653	Chemistry of Nanoscale Materials	3
CHEM/ BIOCHEM 665	Biophysical Chemistry	4
CHEM 668	Biophysical Spectroscopy	2-3
CHEM 725	Separations in Chemical Analysis	2-3
CHEM 738	Introduction to Mass Spectrometry	1
CHEM 777	Physical Chemistry of Surfaces	2-3
CIV ENGR 501	Water Analysis-Intermediate	3
CIV ENGR 609	Special Topics in Water Chemistry	1-3
CIV ENGR 700	Chemistry of Natural Waters	3
M S & E 748	Structural Analysis of Materials	3
M S & E 758	Transmission Electron Microscopy Laboratory	1
SOIL SCI 621	Soil Chemistry	3
SOIL SCI 875	Special Topics	1-4