

ENVIRONMENTAL CHEMISTRY AND TECHNOLOGY, PHD

REQUIREMENTS

MINIMUM GRADUATE SCHOOL REQUIREMENTS

Review the Graduate School minimum degree requirements (<https://guide.wisc.edu/graduate/#requirements>) and policies (<https://guide.wisc.edu/graduate/#policies>), 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. Refer to the Graduate School: Minimum Graduate Coursework (50%) Requirement policy: https://policy.wisc.edu/library/UW-1244 (https://policy.wisc.edu/library/UW-1244/).

Overall Graduate GPA Requirement	3.00 GPA required. Refer to the Graduate School: Grade Point Average (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 PhD 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	All doctoral students are required to complete a doctoral minor or graduate/professional certificate. Refer to the Graduate School: Breadth Requirement in Doctoral Training policy: https://policy.wisc.edu/library/UW-1200 (https://policy.wisc.edu/library/UW-1200/).
	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. Additional courses beyond the core courses may be included with approval of the student's academic advisor and the approval of the Environmental Chemistry and Technology Academic Planning Committee.

Note that CIV ENGR 500 Water Chemistry, or an equivalent advanced Environmental Chemistry course, is a highly recommended prerequisite for many of the core Environmental Chemistry and Technology courses. If this have not been met prior to entering the program, students should consider this when planning the coursework.

Code	Title	Credits
Core Courses		
<i>Environmental Inorganic Chemistry</i>		
CIV ENGR 703	Environmental Geochemistry	1-3
or GEOSCI 875	Advanced Topics in Geology	
<i>Environmental Organic Chemistry</i>		
CIV ENGR/ M&ENVTOX/ SOIL SCI 631	Toxicants in the Environment: Sources, Distribution, Fate, & Effects	3
or CIV ENGR 704	Environmental Chemical Kinetics	
<i>Air Chemistry</i>		
CIV ENGR/ ATM OCN 701	The Chemistry of Air Pollution	2-3
or CHEM 629	Atmospheric Chemical Mechanisms	
<i>Environmental Technology</i>		
CIV ENGR 609	Special Topics in Water Chemistry (Topic: Advanced Water Analysis)	3
or CHEM 629	Atmospheric Chemical Mechanisms	
Chemistry Courses (numbered 500 or above)		

Students must complete two chemistry courses numbered 500 or above. Refer to the "Chemistry Course Options" for a partial list of potential courses. Other courses may be substituted for this requirement with the approval of the student's academic advisor and Environmental Chemistry and Technology Academic Planning Committee.

Seminar

Students must enroll in one of the following seminars each semester. Students must present a seminar once per academic year, either fall or spring semester.

CIV ENGR 909	Graduate Seminar – Environmental Chemistry & Technology
or CIV ENGR/ ATM OCN/ BOTANY/ ENVIR ST/ GEOSCI/ ZOOLOGY 911	Limnology and Marine Science Seminar

Research

Students must complete at least 4 credits of research with their faculty advisor.¹

CIV ENGR 890	Pre-Dissertator's Research
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Electives

Students complete electives in an area of interest chosen in consultation with faculty advisor to satisfy minimum credit requirement.

Total Credits

2-7

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
M S & E 748	Structural Analysis of Materials	3
M S & E 758	Transmission Electron Microscopy Laboratory	1
SOIL SCI 621	Soil and Environmental Chemistry	3
SOIL SCI 875	Special Topics	1-4

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28-31

51

¹ If supported with a graduate assistantship (TA, RA, PA), students should enroll in the appropriate number of research credits each semester to achieve full-time status as required by credit-load rules.

Chemistry Course Options

Code	Title	Credits
BIOCHEM 501	Introduction to Biochemistry	3
BIOCHEM 507	General Biochemistry I	3
BIOCHEM 508	General Biochemistry II	3-4
BIOCHEM/ BOTANY 621	Plant Biochemistry	3
CBE 547	Introduction to Colloid and Interface Science	3
CHEM 524	Chemical Instrumentation	3
CHEM 561	Physical Chemistry I	3
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 665	Biophysical Chemistry	3
CHEM 668	Biophysical Spectroscopy	2-3