

CEE GRADUATE HANDBOOK

2020 - 2021

Civil & Environmental Engineering Graduate Handbook 2020-21 Academic Year

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1.0 Introduction

This handbook is intended to serve as a supplemental guide to assist graduate students in the Department of Civil and Environmental Engineering (CEE) as they work towards their degree.

Please note that this is **not** all-inclusive of Syracuse University policy. Students should refer to the most recent [Online Course Catalog](#) for the full listing of Academic Rules & Regulations.

2.0 Program Description

The Department of Civil and Environmental Engineering at Syracuse University was established by the Board of Trustees in 1876. Graduate degrees have been awarded since the 1920's. Civil and Environmental Engineering is one of four departments within the College of Engineering and Computer Science. The department has a long tradition of excellence in graduate teaching and research. Graduate students work closely with their faculty advisors on a variety of research projects. The CEE faculty has a wide range of research and teaching interests. The graduate programs are divided into two disciplines: Civil Engineering and Environment Engineering. Degrees in Civil Engineering are chosen to include an emphasis in Construction Engineering and Management, Geomechanics and Geotechnical Engineering, or Structural and Materials Engineering. Degrees in Environmental Engineering can encompass a broad range of topics or can be more focused on water quality, hydrology, air quality, sustainable infrastructure, or other topics.

3.0 Academic Integrity

Syracuse University aspires to the highest standards of integrity and honesty in all endeavors. The Academic Integrity Policy is designed to make integrity and honesty central to the Syracuse University experience by:

- setting forth clear ethical expectations for students in their academic endeavors;
- promoting consistency of standards and practices across colleges, schools and programs;
- encouraging reporting of suspected violations; and
- facilitating the resolution of cases as promptly as possible while providing thorough and fair consideration for students and instructors.

Education is a central goal of the policy, including affording students an opportunity to discuss and learn from academic integrity violations.

Students must fully inform themselves of their responsibilities in the conduct of their academic work and should familiarize themselves with Syracuse University's policy on Academic Integrity.

The full, updated academic integrity policy may be found on the website for the [Center for Learning & Student Success](#). The Center offers academic integrity education and training upon request.

4.0 Academic Performance

All graduate students are required to maintain a satisfactory level of academic performance, which includes but is not limited to:

- maintaining status as a registered student;
- maintaining the minimum required grade point averages (GPA); and
- maintaining continuous progress toward the completion of degree.

The department will provide the student with written notice should a student's performance become unsatisfactory.

The department may cancel matriculation if these requirements are not met.

4.1 Maintaining Status as a Registered Student

A graduate student is considered to be full-time under any one of the following conditions:

- registered for a semester, full-time study (9 credits for fall, spring, or summer in a program approved by the student's advisor)
- holding an appointment as a graduate assistant or fellow and registered for the semester (fall and spring only)
- registered for fewer than 9 credits but for at least 0 (zero) credits of thesis, dissertation, or degree in progress for the semester and engaged, at a level equivalent to full-time study in one or more of the following activities as certified by your program.
- a proposed plan of study for the semester should be agreed upon between the student and the instructor (signed by both and filed with the school or college)
 - studying for preliminary, qualifying, or comprehensive exams
 - studying for a language or tool requirement
 - actively working on a thesis or dissertation
 - an internship

If the student is not registered for any coursework, including registration for master's thesis credits, then the student must be registered for GRD 998 Degree in Progress.

5.0 Departmental Policy & Personnel

Regular office hours during the academic year are 8:30am until 5:00pm, Monday through Friday. The departmental suite is located at 151 Link Hall.

Please do not hesitate to contact departmental staff if you have any questions or concerns:

Title	Name	Office	Phone	Email
Department Chair & Civil Program Director	Andria Costello Staniec	151G	X2311	costello@syr.edu
Environmental Program Director	Cliff Ian Davidson	462J	X4287	davidson@syr.edu
Administrative Assistant	Nicholas Clarke	151R	X2588	niclarke@syr.edu
Budget Manager	Jennifer Andrews	151B	X2493	jandre02@syr.edu
Office Coordinator	Morgan Narkiewicz	151	X2311	mnarkiew@syr.edu

5.1 Conference/Event Space Reservations

Students who would like to reserve the CEE conference room (Link 151A), or any other space within the College of Engineering and Computer Science, should contact the department's office coordinator.

5.2 Retaking double-numbered coursework

Some courses are double-numbered and have both undergraduate and graduate level sections available (typically as 400-/600-level courses). This allows both undergraduate and graduate students to take the same course, with additional coursework required of graduate students.

Students are prohibited from taking both levels of a double-numbered course. A student that completes the undergraduate-level section may **not** later complete the graduate-level section.

5.3 Curricular Practical Training (CPT)

International student that wish to gain work experience while in the U.S. may apply for Curriculum Practical Training. To be eligible for CPT, a student must:

- Be in good academic standing with the department;
- Have a minimum overall grade point average (GPA) of 2.800; and
- Have completed no fewer than 15 credits of coursework toward their degree;
- Have completed two on-campus semesters.

The department's administrative assistant will provide a recommendation letter upon request. Students are required to enroll in 1 Credit of CEE 670 Experience Credit during the Semester they are engaged in CPT. CEE 670 cannot be counted towards a

student's Program of Study. Any student interested in CPT should speak with an advisor at the [Slutzker Center for International Services](#).

5.4 Optional Practical Training (OPT)

International students with an F-1 visa may be eligible for a 12-month temporary employment authorization.

The department's administrative assistant will provide a recommendation letter upon request. For details, please contact the [Slutzker Center for International Services](#).

5.5 Graduate Seminar Series

The department will host graduate research seminars throughout the fall and spring semesters. Departmental seminars are generally held on Friday afternoons. Dates and times will be announced through email. All Full-Time MS and PhD students are expected to enroll in CEE 660 the Graduate Seminar each semester, although PhD students in absentia may be excused from this requirement.

5.6 Health History and Health Insurance

Health History and Immunization Forms

Syracuse University is obligated to enforce student immunization requirements, as defined by New York State Public Health Law, which requires all students to provide proof of immunity to Measles, Mumps and Rubella. This information may be obtained by contacting your High School or Primary Care Provider. In addition, a completed response form related to Meningococcal Meningitis vaccine is required. [Health Services](#) provides a patient portal for students to securely upload required immunizations and complete needed health screenings. Use your NetID and password to access the portal at suhportal.syr.edu. Records are due prior to your arrival on campus.

Health Insurance

All full-time, matriculated students are required to show proof of health insurance that meets the University's requirements. For information about the University's health insurance requirement or the plan, review healthinsurance.syr.edu.

6.0 Civil Engineering PhD

The Doctor of Philosophy (PhD) is a research-based degree program involving a high level of advanced training in the chosen field. A dissertation consisting of original research in a specialty area within the field is required.

A minimum of 48 credit hours of coursework are required. No credits are given to the dissertation.

A student entering the program with a prior MS degree may petition to transfer in a maximum of 30 graduate-level credits as approved by the program director.

A minimum of three years of graduate study is required. Students typically complete their degree within five years.

6.1 Advising

The candidate, with advice from the department chair and/or the program director, selects a dissertation advisor, whose consent must be obtained. The candidate and the advisor together, with consent from the department chair, select the members of the examination and dissertation committees. The candidate, in consultation with the advisor and dissertation committee, selects a program of coursework appropriate to the research and scholarly interests of the student.

6.2 Exit Requirements

- No fewer than 48 total credits of graduate-level coursework;
- minimum 3.333 GPA for all coursework used toward the completion of degree;
- minimum 2.800 GPA cumulative for all coursework taken at SU;
- for students with an M.S. degree, at least two-thirds of the Ph.D. coursework must be at or above the 600 level, and no more than one-third of the coursework can be independent study;
- satisfactory academic performance;
- successful completion of a qualifying examination;
- successful completion of a candidacy examination; and
- successful defense of a dissertation in an oral examination.

6.3 Exceeding Time to Degree Requirements

If the student has exceeded the seven-year limit for achieving ABD status, the student must register for GRD 991, which requires a minimum of one credit hour per semester, each fall and spring semester until ABD status is achieved. If the student fails to register for GRD 991, for a given term, the student will be withdrawn from the program.

If the student has exceeded the degree completion limit of five years after achieving ABD status, the student must register for GRD 991, which requires a minimum of one credit hour per semester, each fall and spring semester until the completion of the doctoral degree. If the student fails to register for GRD 991, for a given term, the student will be withdrawn from the program.

6.4 Qualifying Examination

The examination is composed of two parts: a written exam followed by an oral examination covering materials from at least three graduate level classes that the student has taken at Syracuse University, as well as relevant materials from undergraduate coursework. The purpose of this examination is to assess the student's background knowledge in his/her primary subject area(s) and his/her preparedness for Ph.D. level research. The result of this examination is a decision by the exam committee as to whether or not the student should continue in the Ph.D. program.

Timing

Students are expected to complete their Qualifying Exam after their first year of study.

Exam Committee

The exam committee shall consist of at least three faculty members. The majority of the committee membership shall be faculty members from the Department of Civil and Environmental Engineering at Syracuse University.

Scheduling

The student must work with their advisor to select the members of their exam committee, and to determine the date and time of the written and oral parts of the examination. The length of time spent on the written portion of the exam will be determined by the advisor in coordination with the committee.

Students must notify the department's administrative assistant at least two weeks prior to the oral examination date with the Date, Time and Location of the oral exam and the selected Committee Members.

Qualifying oral examinations can be held in the CEE Conference Room (151A Link Hall) or in the Link-Plus Conference Room (462K Link Hall) if available, or other space upon request.

At least 2.5 hours should be scheduled for the oral exam to allow sufficient time for questions.

Exam Process

If the student does not pass this examination, they can request to retake the examination one more time in the following semester. In the event that the student fails the examination for the second time, their Ph.D. program of study will be terminated.

6.5 Candidacy Examination

Timing

Students are expected to present their research proposal to a faculty examination committee after completion of the student's required Ph.D. coursework, but no later than the fifth semester after admission into the Ph.D. program.

Organization of the Proposal

Prior to this examination, the student shall prepare a detailed research proposal that includes, but is not limited to a review of relevant literature leading to a statement of objectives (including major questions or hypotheses to be addressed in the dissertation), a description of methods and approaches to be used, and a brief description of the significance of the proposed work. The proposal will often include preliminary results from the student's work to date.

Exam Committee

The examination committee will consist of five members: the dissertation advisor and at least four other faculty members.

The majority of the committee membership shall be faculty members from the Department of Civil and Environmental Engineering at Syracuse University.

A copy of the research proposal must be delivered to all members of the exam committee at least two full weeks prior to the oral defense date. Any committee member who receives their copy fewer than 14 calendar days prior to the defense may ask for a postponement of the defense. The student should not distribute the final draft of the research proposal until the advisor is satisfied with it.

Scheduling

The student must work with their advisor to select the members of their exam committee, and to identify which committee member will serve as exam chair, and to determine the date and time of the presentation.

A copy of the research proposal must be delivered to all members of the exam committee at least two full weeks prior to the oral defense date.

Students must contact the department's administrative assistant at least two weeks prior to the presentation date with the Date, Time and Location of the Exam and the selected Committee Members.

Candidacy examinations can be held in the CEE Conference Room (151A Link Hall) or in the Link-Plus Conference Room (462K Link Hall) if available, or other space upon request.

At least 2 hours should be scheduled to allow sufficient time for questions.

Exam Process

The oral examination is initiated by a 30-40 minute summary of the dissertation research proposal and progress to date by the student.

Following the presentation, the dissertation committee members ask the student questions concerning the research proposal.

Following the examination, the dissertation committee confers to determine if the student is a suitable Ph.D. candidate based on his/her performance on the candidacy examination, as well as to determine if the student should be required to take additional coursework beyond the minimum required for the degree.

If the student successfully completes the candidacy examination by receiving an affirmative vote from the majority of the committee, the advisor notifies the student and the graduate school and the student is considered a Ph.D. candidate.

If the student does not successfully complete the candidacy examination, the committee determines whether the student will be permitted to retake the examination after a minimum period of six months or whether the student's Ph.D. program should be terminated.

6.6 Dissertation

The Oral Dissertation Defense and submission of the dissertation document to the Syracuse University Graduate School are the final requirements of the PhD program.

Defense paperwork must comply with [Graduate School's guidelines](#), including formatting.

Preparation

It is recommended that the student meet with their defense committee to review dissertation progress at least three to six months in advance of the defense. The student should not distribute the final draft of the dissertation until the advisor is satisfied with it. Readers should be presented with a polished draft that has been proofread, paginated, and contains professional quality tables and figures with captions.

Deadlines

The official Request for Examination form must be signed and submitted to the Graduate School at least **three full weeks** prior to the oral defense date.

A copy of the dissertation document must be delivered to all members of the defense committee at least **two full weeks** prior to the oral defense date. Any committee member who receives their copy fewer than 14 calendar days prior to the defense may ask for a postponement of the defense.

Defense Committee

The dissertation defense committee will consist of six members, including

- the research advisor;
- four tenured or tenure-track faculty members from the department; and
- the Chair of the Oral Examination Committee.

The Chair of the Oral Examination Committee must be a Syracuse University tenured or tenure-track faculty member from outside the department and program.

The student may substitute one committee member based on subject-matter expertise who does not satisfy the second bullet above and may be internal or external to Syracuse University. Additional external committee members may be allowed by petition.

Defense Process

The dissertation defense is usually initiated with a 30-40 minute summary of the research. This is followed by open questioning from the audience. When this is completed, the candidate is questioned by the dissertation committee members.

For the candidate to pass the dissertation defense, a majority vote on the quality and originality of the research, the quality of the dissertation, and the performance of the candidate at the examination is required.

7.0 Master of Science Programs

The Master of Science is a flexible and individually-structured program, planned by the student and their advisor to help students develop careers in their chosen field. The MS can be a terminal degree or an introduction to research before pursuing the PhD. All plans are designed to be completed within three to four semesters.

7.1 Master of Science in Civil Engineering

All Civil Engineering MS Students will follow one of three plans. Students completing a Civil Engineering MS must select one the following concentrations: Construction Engineering and Management, Geomechanics and Geotechnical Engineering, or Structural and Materials Engineering. Students who receive a Master's in Civil Engineering in one focus area cannot apply for and receive a second Master's in Civil Engineering in a different focus area.

7.2 Master of Science in Environmental Engineering

The MS in Environmental Engineering is intended for students with undergraduate engineering degrees.

7.3 Master of Science in Environmental Engineering Science

The MS in Environmental Engineering Science is intended for students with technical/scientific undergraduate degrees that are not in engineering.

7.4 Exit Requirements

- No fewer than 30 total credits of graduate-level coursework;
- completion of all coursework group requirements in a selected concentration;
- minimum 3.000 GPA for all coursework used toward the completion of degree;
- minimum 2.800 GPA cumulative for all coursework taken at SU;
- no more than 15 credits of 500-level coursework;
- at least 15 credits must be CEE prefixed graduate level courses; and
- satisfactory completion of either a thesis or an exit paper.

7.5 Thesis

The Oral Thesis Defense and submission of the thesis document to the Syracuse University Graduate School are the final requirements for students in a thesis plan.

Defense paperwork must comply with the [Graduate School's guidelines](#), including formatting.

The candidate must complete a minimum of 24 credit hours of coursework, which include a set of core courses in the student's chosen area of specialization and a cohesive program of elective coursework approved by the student's advisor, as outlined in the attached programs of study. All Full-Time M.S. candidates are expected

to participate in faculty/student seminar series (CEE 660) each year. In addition, the student must register for six credits of CEE 997-Master's Thesis, culminating in the defense of the thesis administered by the student's thesis committee.

Deadlines

The official Request for Examination form must be signed and submitted to the Graduate School at least **three full weeks** prior to the oral defense date.

A copy of the thesis document must be delivered to all members of the defense committee at least **two full weeks** prior to the oral defense date.

Defense Committee

The thesis defense committee will consist of four members, including

- the thesis advisor;
- two faculty members from the department or other specialists in the subject area; and
- the Chair of the Oral Examination Committee

The Chair of the Oral Examination Committee must be a Syracuse University tenured or tenure-track faculty member.

Two of the four-committee members must be CEE faculty members.

A committee member from outside Syracuse University may be allowed by petition.

7.6 Exit Paper

Students not completing a Master's Thesis must instead complete a Master's Exit Paper. To complete the degree requirement, a student must also take CEE 995-Master's Exit Paper for zero credit. The exit paper must be an original work that addresses issues related to their specialty approved by the faculty advisor and have a minimum length of 2,000 words. The faculty advisor determines the specific formatting and requirements for the exit paper.

8.0 Civil Engineering MS - Programs of Study

Programs are planned by the students in consultation with their advisors. At least half of the coursework must be at or above the 600 level. Students who have taken the lower level of a double-numbered course (e.g., a course offered at the 400 and 600 levels) may not take the higher level of the same course for credit.

M.S. candidates may transfer a maximum of six credits from other institutions and are expected to complete their entire program within five calendar years of admission.

Thesis and non-thesis options are available. Students anticipating further graduate study at the doctoral level should pursue the thesis option.

Requirements with Thesis (30 credits)

1. Completion of 9 credits of core courses in any one of the following areas: construction engineering and management, geotechnical engineering, or structural engineering.
2. Completion of 15 credits of coursework satisfying the distributional requirements for each concentration.
3. Completion of 6 credits of CEE 997 - Master's Thesis
4. Defense of thesis
5. Participation in the zero credit faculty/student seminar program (CEE 660)

Requirements without Thesis (30 credits)

1. Completion of 9 credits of core courses in any one of the following areas: construction engineering and management, geotechnical engineering, or structural engineering.
2. Completion of 21 credits of coursework satisfying the distributional requirements for each concentration.
3. Completion of CEE 995 - Master's Exit Paper (zero credits)
4. Participation in the zero credit faculty/student seminar program (CEE 660)

8.1 Construction Engineering and Management - Program of Study

Construction Engineering and Management - 30 Total Credit Hours

Group 1 - Core Courses

All courses in Group 1 are required for a total of 9 Credit Hours. Courses include:

- CEE 601 Construction Engineering and Project Management;
- CEE 639/ECS 636 Sustainable Development and Infrastructure Management;
- CEE 605 Construction Estimating and Scheduling.

Group 2 - Advanced Fundamentals

At least one course from Group 2 (3 credit hours) must be selected.

Course	Description
CEE 637	Advanced Soil Mechanics and Foundation Engineering I
CEE 678	Rehabilitation of Civil Infrastructure
CEE 663	Introduction to Sustainable Engineering
MAE 548	Engineering Economics and Technology Valuation
MFE 634	Productivity and Quality Control

Group 3 - Design

At least one course from Group 3 (3 credit hours) must be selected.

Course	Description
CEE 535	Structural Steel Design
CEE 536	Prestressed Concrete Design
CEE 549	Designing with Geofoam
CEE 638	Advanced Soil Mechanics and Foundation Engineering II
CEE 641	Seepage and Earth Dam Design
CEE 643	Transportation Engineering
CEE 739	Soil Stabilization

Group 4 - Management and Advanced Tools

At least one course from Group 4 (3 credit hours) must be selected.

Course	Description
ECS 526	Statistics for Engineers
ECS 650	Managing Sustainability
GEO 683	Geographic Information Systems
MBC 616	Operations Management (1.5 credits). Must be taken with MBC 617
MBC 617	Supply Chain Management (1.5 credits). Must be taken with MBC 616
PAI 712	Public Organizations and Management
PAI 731	Financial Management in State and Local Governments. Cannot be taken with PAI 734.
PAI 734	Public Budgeting. Cannot be taken with PAI 731.
PAI 895	Mid-Career Training Group
SCM 656	Project Management
SCM 701	Introduction to Supply Chain Management
SCM 702	Principles of Management

Group 5 - Electives

- Advisor approval is required before a student can take courses from this group.
- Some suggested elective courses can be selected from Engineering and Computer Science (ECS) and Public Administration and Management (PAI) courses not listed above, Architecture (ARC), and Construction Management at ESF (CME).
- For the MS with Thesis - Two additional course from Groups II through V, upon advisor's approval, one of which can be CEE 690 - Independent study, should be taken for a total of 6 credit hours. Students will also enroll in CEE 997 - Master's Thesis for 6 credit hours.
- For the MS without Thesis - Four additional courses from Groups II through V upon advisor's approval; one of which can be CEE 690 - Independent study for a total of 12 credit hours. Students will also enroll in CEE 995 - Master's Exit Paper (0 credits). The exit paper must address a topic relevant to construction engineering. The paper can be an original work or it can be a critical review of a published journal article.
- All Full-Time MS candidates must enroll and participate in CEE 660-CEE Seminar.

8.2 Geomechanics and Geotechnical Engineering - Program of Study

Geomechanics and Geotechnical Engineering - 30 Total Credit Hours

Group 1 - Core Courses

Three courses in Group 1 are required for a total of 9 Credit Hours. Courses include:

- CEE 637 Soil Mechanics and Foundation Engineering I;
- CEE 638 Soil Mechanics and Foundation Engineering II;
- Either CEE 549 Designing with Geofoam, or CEE 584 Designing with Geosynthetics.

Group 2 - Advanced Fundamentals

At least one course from Group 2 (3 credit hours) must be selected.

Course	Description
CEE 538	Dynamics of Structures
CEE 633	Finite Element Analysis
CEE 737	Applied Soil Mechanics
CEE 739	Soil Stabilization
CEE 740	Soil Dynamics

Group 3 - Design

At least two courses from Group 3 (6 credit hours) must be selected.

Course	Description
CEE 545	Pavement Design
CEE 549	Designing with Geofoam
CEE 584	Designing with Geosynthetics
CEE 641	Seepage and Earth Dam Design

Group 4 - Advanced Tools

At least one course from Group 4 (3 credit hours) must be selected.

Course	Description
CEE 629	Reliability of Civil Systems
CEE 678	Rehabilitation of Civil Infrastructure
EAR 601	Hydrogeology
EAR 603	Geomorphology
ERE 527	Storm Water Management
ERE 551	GIS for Engineers
ERE 693	GIS Based Modeling

Group 5 - Electives

- Advisor approval is required before a student can take courses from this group.
- Some suggested elective courses can be selected from Earth Science (EAR), Computer Programming (CIS), Construction Engineering (CME), Information Technology (IST), and Other CEE graduate courses.
- For the MS with Thesis - One additional course from Groups II through V, upon advisor's approval, or CEE 690 - Independent study should be taken for a total of 3 credit hours. Students will also enroll in CEE 997 - Master's Thesis for 6 credit hours.
- For the MS without Thesis - Three additional courses from Groups II through V upon advisor's approval; one of which can be CEE 690 - Independent study for a total of 9 credit hours. Students will also enroll in CEE 995 - Master's Exit Paper (0 credits). The exit paper must address a topic relevant to geotechnical engineering. The paper can be an original work or it can be a critical review of a published journal article. The paper has a minimum length requirement of 2000 words and requires approval of the student's advisor.
- All Full-Time MS candidates must enroll and participate in CEE 660-CEE Seminar.

8.3 Structural and Materials Engineering - Program of Study

Structural Engineering - 30 Total Credit Hours

Group 1 - Core Courses

All courses in Group 1 are required for a total of 9 Credit Hours. Courses include:

- CEE 633 Finite Element Analysis;
- CEE 678 Rehabilitation of Civil Infrastructure;
- MAE 635 Advanced Mechanics of Materials.

Group 2 - Structural Analysis

At least one course from Group 2 (3 credit hours) must be selected.

Course	Description
CEE 600	Multiscale Material Modeling and Simulations
CEE 629	Reliability of Civil Systems
CEE 631	Classical and Matrix Structural Analysis
CEE 634	Stability Analysis of Structural Systems

Group 3 - Structural Design

Two courses from Group 3 (6 credit hours) must be selected. One course must be on Steel Design, and one course must be on either Concrete Design or Bridge Engineering.

Course	Description
CEE 535	Structural Steel Design
CEE 536	Pre-Stressed Concrete Design
CEE 635	Advanced Reinforced Concrete Design
CEE 636	Plastic Design of Steel Structures
CEE 666	Design of Concrete Bridges

Group 4 - Dynamics and Earthquake Engineering

At least one course from Group 4 (3 credit hours) must be selected.

Course	Description
CEE 538	Dynamics of Structures
CEE 600	Geotechnical Earthquake Engineering
CEE 632	Structural Dynamics and Earthquake Engineering
MAE 626	Vibration of Mechanical Systems

Group 5 - Electives

- Advisor approval is required before a student can take courses from this group.
- Some suggested elective courses can be selected from Architecture (ARC), Construction Management (CME), Political Science, Engineering and Computer Science (ECS), Information Studies Management (IST), Public Communications, and Other CEE graduate courses not listed above.
- Note that CEE 520 - Building Information Modeling and ARC 555 - Introduction to Building Information Modeling are essentially the same course, and so they can only be counted once towards your program of study.
- For the MS with Thesis - One additional course from Groups II through V, upon advisor's approval, or CEE 690 - Independent study should be taken for a total of 3 credit hours. Students will also enroll in CEE 997 - Master's Thesis for 6 credit hours.
- For the MS without Thesis - Three additional courses from Groups II through V upon advisor's approval; one of which can be CEE 690 - Independent study for a total of 9 credit hours. Students will also enroll in CEE 995 - Master's Exit Paper (0 credits). The exit paper must address a topic relevant to structural engineering. The paper can be an original work or it can be a critical review of a published journal article. The paper has a minimum length requirement of 2000 words and requires approval of the student's advisor.
- All Full-Time MS candidates must enroll and participate in CEE 660-CEE Seminar.

9.0 Environmental Engineering MS Programs

9.1 Environmental Engineering MS - Program of Study

Group 1 - Core Courses

Three courses in Group 1 are required for a total of 9 or 10 Credit Hours. Select three from the group. Only one course can come from the Hydrology Group, and only one course can come from the Statistics Group. Courses include:

- CEE 642 Treatment Processes in Environmental Engineering
- CEE 671 Environmental Chemistry and Analysis
- CEE 672 Applied Environmental Microbiology

Statistics Courses (only one can count as a core course)

- APM 595 Probability and Statistics for Engineers
- CEE 687 Environmental Geostatistics

Hydrology Courses (only one can count as a core course)

- CEE 659 Advanced Hydrology
- EAR 601 Hydrogeology
- ERE 645 Hydrologic Modeling

Group 2 - Electives

- Any CEE graduate course, no more than 15 credits of 500-level coursework. Other graduate courses can be used as Group 2 electives if approved by the student's advisor.
- Advisor approval is required before a student can take courses from this group.
- For the MS with Thesis - In addition to the three courses taken in Group 1, five additional elective courses, upon advisor's approval, one of which can be CEE 690 - Independent study should be taken for a total of 15 credit hours. Students will also enroll in CEE 997 - Master's Thesis for 6 credit hours.
- For the MS without Thesis - In addition to the three courses taken in Group 1, seven additional elective courses, upon advisor's approval, one of which can be CEE 690 - Independent Study should be taken for a total of 21 credit hours. Students will also enroll in CEE 995 - Master's Exit Paper (0 credits). The exit paper must address a topic relevant to environmental engineering. The paper can be an original work or it can be a critical review of a published journal article. The paper has a minimum length requirement of 2000 words and requires approval of the student's advisor.
- All Full-Time MS candidates must enroll and participate in CEE 660-CEE Seminar.

9.2 Environmental Engineering Science MS - Program of Study

Group 1 - Core Courses

Both courses in Group 1 are required for a total of 6 Credit Hours. Required Courses include:

- CEE 671 Environmental Chemistry and Analysis
- CEE 672 Applied Environmental Microbiology

Group 2 - Advanced Fundamentals

At least two courses from Group 2 (6 credit hours) must be selected.

Course	Description
CEE 577	Urban Stormwater Management
CEE 600	Snow in the Natural & Built Environment
CEE 613	Physical Hydrology
CEE 630	Environmental Organic Chemistry
CEE 650	Environmental Risk Assessment & Toxicology
CEE 653	Applied Aquatic Chemistry
CEE 657	Biogeochemistry
CEE 659	Advanced Hydrology
CEE 663	Introduction to Sustainable Engineering

Group 3 - Advanced Tools

One course from Group 3 (3 credit hours) must be selected. Courses in probability and statistics and/or regression analysis may be accepted with advisor approval.

Course	Description
APM 595	Probability and Statistics for Engineers
CEE 600	Data Science for Environmental Systems Research
GEO 683	Geographic Information Systems

Group 4 - Electives

- Advisor approval is required before a student can take courses from this group.
- Some suggested elective courses can be selected from Law and Public Policy, Management, Computer Programming, and other CEE graduate courses not listed above.
- For the MS with Thesis - Three additional courses from Groups II through IV, upon advisor's approval, for a total of 9 credit hours. One of these can be CEE 690 - Independent study for 3 credit hours. Students will also enroll in CEE 997 - Master's Thesis for 6 credit hours.
- For the MS without Thesis - Four additional courses from Groups II through IV upon advisor's approval, should be taken for a total of 12 credit hours. One of these can be CEE 690 - Independent study for 3 credit hours. Students will also either enroll in (a) CEE 600 Environmental Assessment (3 Credit hours); or (b) CEE 995 - Master's Exit Paper (0 credits) and one additional course from Groups II through IV (3 credit hours). The exit paper must address a topic relevant to environmental engineering. The paper can be an original work or it can be a critical review of published journal articles. The paper has a minimum length requirement of 2000 words and requires approval of the student's advisor.
- All Full-Time MS candidates must enroll and participate in CEE 660-CEE Seminar.

10.0 Electives

Graduate students at Syracuse University are able to take courses at both SUNY ESF and SUNY Upstate Medical University.

Students may register for SUNY Upstate Medical University coursework using the Inter-Institutional Graduate Course Registration Form, which is available from the department's administrative assistant. All coursework taken at SUNY Upstate Medical University must be approved by petition.

Students may register for SUNY ESF coursework normally using MySlice.

Please contact the department if you are interested in an elective that is not included on one of the approved lists below.

Additional coursework at Syracuse University or SUNY ESF may be approved by petition. Master's Degree Programs require at least 15 Credits of Coursework be CEE Prefixed.

10.1 Approved by Prefix and Level

Unless otherwise noted, all courses offered by either Syracuse University or SUNY ESF that are numbered 600:996 with one of the following prefixes are approved as electives for all MS & PhD programs of study. Students must consult with their advisor to confirm an elective can be applied towards their program of study.

Prefix	Department
APM	Applied Mathematics
ARC	Architecture
BCM	Biochemistry
BEN	Bioengineering
BIO	Biology
BPE	Bioprocess Engineering
BTC	Biotechnology
CEN	Chemical Engineering
CHE	Chemistry
CME	Construction Management Engineering
CIS	Computer and Information Science
CPS	Computational Science
CSE	Computer Engineering
EAR	Earth Sciences
ECS	Engineering and Computer Science
EGR	Engineering
FCH	Chemistry
IST	Information Studies
MAE	Mechanical and Aerospace Engineering
MAT	Mathematics
MEE	Mechanical Engineering
MFE	Manufacturing Engineering

Prefix	Department
MTS	Materials Science
PHY	Physics
SCM	Supply Chain Management

10.2 Approved by Course, Syracuse University

Additionally, the following specific courses offered by Syracuse University are approved as electives for all graduate-level programs of study.

Course	Description
ARC 555	Introduction to Building Information Modeling*
ARC 558	Advanced Building Information Modeling and 3D Design
COM 600	Multimedia Reporting: Climate Change
EAR 600	Water Energy Field Course
EAR 601	Hydrogeology
EAR 665	Groundwater Modeling
ECS 526	Statistics for Engineers
ECS 651	Strategic Management & The Natural Environment
ECS 759	Sustainability Driven Enterprise
GEO 683	Geographic Information Systems
IST 687	Introduction to Data Science
IST 719	Information Visualization
MAE 548	Engineering Economics and Technology Valuation
MAE 573	Application of Finite Element Analysis
MAE 587	Design of Solar Energy System
MAE 626	Vibration of Mechanical Systems
MAE 658	Built in Environmental Modeling
MBC 616	Operations Management
MBC 617	Supply Chain Management
PAI 734	Public Budgeting
PAI 895	Managerial Leadership
SCM 656	Project Management
SCM 701	Supply Chain and Logistics Management
SCM 702	Principles of Management Science

*Note that CEE 520 - Building Information Modeling and ARC 555 - Introduction to Building Information Modeling can only be counted once towards a program of study. If a student has taken either CEE 520 or ARC 555 and used it towards any program of study, they cannot take the other course for program credit.

10.3 Approved by Course, SUNY ESF

Additionally, the following specific courses offered by SUNY ESF are approved as electives for all graduate-level programs of study.

Course	Description
APM 595	Probability and Statistics for Engineers
APM 620	Experimental Design and ANOVA
CME 531	Construction Safety
CME 535	Cost Engineering
CME 543	Construction Estimating
ERE 527	Stormwater Management
ERE 551	GIS for Engineers
ERE 645	Hydrologic Modeling
ERE 693	GIS-Based Modeling
ENS 607	Wetland Practicum
EST 695	Environmental Journalism
EST 770	Ecological Economics & Policy

11.0 Certificates of Advanced Study

Civil and Environmental Engineering graduate students have the opportunity to earn a Certificate of Advanced Study (CAS) in the following programs:

11.1 Sustainable Enterprise

The Certificate of Advanced Study in Sustainable Enterprise (CASSE) integrates business, science, engineering, and environmental science and policy, taking a transdisciplinary approach to sustainable enterprise. The program brings together graduate students in Business, Engineering, and Environmental Sciences. Students must complete 15 credits for the certificate.

Students who complete the certificate will be fluent in the economic, environmental, and social dimensions of sustainability and their interdependence; systems science and its relationship to sustainability; and the natural, financial, technical, legal, and social drivers of sustainability strategy in businesses and other organizations. They will be prepared to engage in transdisciplinary collaboration to develop sustainable solutions to complex organizational challenges.

Group 1 - Required Courses (9 Credits)

All three courses are required.

Course	Description
BUA 650/ECS 650/EST 696	Managing Sustainability: Purpose, Principles, and Practice
BUA 651/ECS 651	Strategic Management and the Natural Environment
BUA 759/ECS 759/EST 796	Sustainability Driven Enterprise

Group 2 - Electives (6 Credits)

Two courses of CEE Graduate level coursework.

11.2 Public Infrastructure Management and Leadership

The College of Engineering and Computer Science, in collaboration with the Department of Public Administration and the Executive Education Program within The Maxwell School at Syracuse University, has created a joint 15-credit certificate program entitled the Joint Certificate of Advanced Studies in Public Infrastructure Management and Leadership (CAS-PIML). This certificate program is geared towards mid-career professionals that are interested in building on their body of experience and expanding their skills and knowledge in infrastructure planning, engineering, management and administration through course work that is relevant to their knowledge, interests, and needs.

Group 1 - Required Courses

Four courses are required from this group for a total of 12 Credits. Students may take either PAI 734 or PAI 731. PAI 895, MAE 548 and ECS 636 are required.

Course	Description
PAI 895	Mid-Career Training Group Executive Education Seminar: Managerial Leadership
PAI 734	Public Budgeting
PAI 731	Financial Management in State and Local Governments
MAE 548	Engineering Economics and Technology Valuation
ECS 636	Sustainable Development and Infrastructure Management

Group 2 - Elective

One course selected from the group below, or approved by course director for 3 Credits.

Course	Description
CEE 570	Water & Wastewater Treatment
CEE 601	Construction Engineering and Project Management
CEE 643	Transportation Engineering
CEE 678	Rehabilitation of Civil Infrastructure
PAI 601	Fundamentals of Conflict Studies
PAI 730	Problems in Public Administration
PAI 730	Environmental Conflicts and Collaboration
PAI 757	Economics of Development
PAI 777	Economics of Environmental Policy

11.3 Enterprise Technology Leadership

The Certificate of Advanced Study in Enterprise Technology Leadership is an interdisciplinary Certificate of Advanced Study designed by key representatives of The School of Information Studies (iSchool), The College of Engineering & Computer Science, and The Martin J. Whitman School of Management.

The curriculum is designed to fit the needs of working professionals in a variety of fields who are working toward or aspire to be in technology leadership roles. The Certificate of Advanced Study is also designed to assist companies in cultivating technology leadership within their organization. This certificate requires 15 graduate credits.

Group 1 - Core Courses

Three courses in Group 1 are required for a total of 9 Credit Hours. Courses include:

- IST 645 Managing Information System Projects
- MAE 548 Engineering Economics and Technology Valuation
- MBC 639 Leadership in Organizations; or MBC 645 Strategic Management

Group 2 - Electives

Students must choose two electives from the listed disciplinary area below for 6 Credit Hours.

Discipline - Civil and Environmental Engineering

Course	Description
CEE 535	Structural Steel Design
CEE 536	Pre-Stressed Concrete Design
CEE 551	Energy Conversion
CEE 558	Solid Wastes: Collection and Disposal

11.4 Public Administration

This certificate is for midcareer professionals who cannot leave work to complete the entire Executive Master of Public Administration program but still desire a rigorous educational experience focusing on significant elements of public administration. Most individuals taking the certificate state an interest in improving their management and leadership skills or an interest in developing concrete knowledge in a specific policy area. This certificate requires 12 graduate credits. To complete the certificate, students take 12 credits of Public Administration coursework (recognized by a PAI prefix), including one required course, PAI 895 Managerial Leadership.

12.0 Recent Theses and Dissertations

12.1 Ph.D Dissertations

- Babak Roodsari, “Impacts of Urban Development Pattern on Runoff Peak Flows and Streamflow Flashiness of Peri-Urban Catchments: Assessing the Performance of Physical and Data-Driven Models for Real-Time Ensemble Flood Forecasting”, 2019
- Chen Liu, “Assessment of Stress-Strain Behavior of EPS Geofom By Using New Sensors”, 2019
- Wenxiu Liu, “Effect of Magnetic Negative Stiffness Damper on the Seismic Response of Single-Degree-of-Freedom Systems”, 2019.
- Mahnaz Valipour, “Modeling the Interactions of Forest Cutting and Climate Change on the Hydrology, Biomass and Biogeochemistry of a Northeastern Forest”, 2019
- Geoffrey Dean Millard, “Status and Remediation of Mercury in Fish and Aquatic Systems”, 2019
- Cheng Tan, “Widening of Reinforced Concrete Bridges - Extension of Pier Cap Beams with CFRP Composites”, 2019
- Javad Shafiei Shiva, “How Heatwaves are Changing Urban Livability across the United States: A Case Study in Ten Communities”, 2020
- Yige Yang, “Evaluating the Hydrologic and Thermal Performance of a Green Roof: Observations, Experiments, and Modeling of a Full-Scale System”, 2020
- Fang Wang, “Mechanical Properties and Cyclic Behavior of High Strength Steel After Fire Exposure”, 2020
- Xingji Lu, “Column Footings Strengthened with External Prestressing and External Wrapping Systems”, 2020

12.2 MS Theses

- Lucie Worthen, “Doing a Lot with a Little: A Diagnostic Analysis of SWMM to Simulate Hydrologic Behavior within LID Systems”, 2019
- Nicholas LoRusso, “Dissolved organic matter dynamics in calcium-treated and reference watersheds at Hubbard Brook Experimental Forest”, 2019
- Chinthoory Ganesalingam, “A Framework to Predict the Dewatering Performance of Large-Scale Geotextile Tubes in the Field”, 2019
- Burak Gursoy, “Network Level Pavement Deterioration Prediction Modeling for the City of Syracuse”, 2019
- Ryan Homeyer, “A Feasibility Study of a Low-cost, Large-scale Thermal Treatment Process for Human Feces”, 2019
- Raed Ashour, “The Effects of Shrinkage Reducing Admixtures on Shrinkage and Strength Properties of Cement Mortar Lining Mixes”, 2020

13.0 Faculty

13.1 Full Time Faculty

Riyad S. Aboutaha



Ph.D. (University of Texas at Austin), Associate Dean and Associate Professor of Civil and Environmental Engineering

Specialty: Structural Engineering

E-mail: rsabouta@syr.edu

- Teaching Interests: Rehabilitation of Civil Infrastructure, Bridge Engineering, Behavior and Design of Reinforced and Pre-Stressed Concrete Structures, Mechanics of Materials, and Structural Analysis
- Research Interests: Structural Rehabilitation of Civil Infrastructure, Bridge Retrofit with CFRP Composites, Experimental Investigation of Structural Concrete and Steel Systems, FRP Reinforced Concrete Structural Systems, Foundation Strengthening, Cost-Effective Preventive Maintenance and Widening of Highway Bridges, Rehabilitation of Fire Damaged Concrete Structures, and Investigation of Structural Failures

Sample Publications:

- Xingji Lu, Riyad S. Aboutaha (2020), "Structural strengthening of square spread footings using circular external prestressing," *Journal of Building Engineering*, Volume 31, September 2020.
- Cheng Tana, Jia Xub and Riyad S. Aboutaha (2020), "Numerical analysis of RC hammer head pier cap beams," *Computers and Concrete*, Vol. 25, No. 5.
- Chanachai Thongchom, Akhrawat Lenwari, and Riyad S. Aboutaha (2019) "Effect of Sustained Service Loading on Post-Fire Flexural Response of Reinforced Concrete T-Beams," *ACI Structural Journal*, Vol. 116, pp 243-254.
- Jnaid, F., and Aboutaha, R. (2016) "Residual Flexural Strength of Corroded Reinforced Concrete Beams," Elsevier, [Link](#).
- El-Helou, R., and Aboutaha, R., "Analysis of Rectangular Hybrid Steel-GFRP Reinforced Concrete Beam Columns," *Computers and Concrete*, Vol. 16, No. 2 (2015) pp. 245-260.

Shobha K. Bhatia



Ph.D. (University of British Columbia), Professor of Civil and Environmental Engineering, Laura J. and L. Douglas Meredith Professor for Teaching Excellence

Specialty: Geotechnical Engineering

E-mail: skbhatia@syr.edu

- Teaching Interests: Designing with Geosynthetics, Seepage and Earth Dams, Ground Improvement, Soil Dynamics and Advanced Soil Mechanics
- Research Interests: Dredged Sediment Dewatering and Containment, Green Polymers and Cellulose Materials, Application of Natural Fibers in Engineering, Soil Erosion, Women in Science and Engineering (WISE)

Sample Publications:

- Fatema, N., and Bhatia, S. K. (2019). "Comparisons between Geotextile Pore Sizes Obtained from Capillary Flow And Dry Sieving Tests," *Geotechnical Testing Journal*, DOI: 10.1520/GTJ20180203.
- Duggan, K. L., Morris, M., Bhatia, S. K., and Lewis, K. E. (2019). "Analyzing the Toxicity of Cationic Polyacrylamide and Cationic Starch on Aquatic Life," *Journal of Hazardous, Toxic, and Radioactive Waste*, ASCE. Oct; 23(4): 10.1061/HZ.2153-5515.0000467.
- Fatema, N., and Bhatia, S. K. (2018). "Sediment Retention and Clogging of Geotextile with High Water Content Slurries," *International Journal of Geosynthetics and Ground Engineering*, 4: 13. [Link](#).
- Ratnayesuraj C.R, Kiffle, Z.B., Bhatia, S.K., Lebster G. and Timpson, C. (2018). Tests and Analytical Model to Predict Geotextile Tube Performance in the Field: A Case Study. *International Foundations Congress and Equipment Expo*, March 5-10, 2018.
- RatnaYesuraj, C.R. and Bhatia, S.K. (2018). Testing and Analytical Modeling of Two-dimensional Geotextile Tube Dewatering Process. *Geosynthetics International*, Volume 25, No. 2 April, pp.132-149. <https://doi.org/10.1680/jgein.17.00038>
- Khachan, M. M., and Bhatia, S. K. (2017). The Efficacy and Use of Small Centrifuge for Evaluating Geotextile Tube Dewatering Performance. *Geotextiles and Geomembranes*, 45(4), 280-293.

Elizabeth K. Carter



Ph.D. (Cornell University), Assistant Professor of Civil and Environmental Engineering
Specialty: Applied Computational Hydroclimatology

E-mail: ekcarter@syr.edu

- Teaching Interests: Hydrometeorology and hydroclimatology, Algorithmic bias in water resources management and engineering ethics.
- Research Interests: Disaster response and mitigation, Detection of water from space, Space/time statistics, Machine learning/artificial intelligence.

Sample Publications:

- Carter, Elizabeth; Hernandex Herrera, Dimitris; Steinschneider, Scott. (2019). Feature engineering for S2S warm-season precipitation forecasts under a unified hypothesis of anomalous warm-season hydroclimatic circulation in the Midwestern US. In submission, *Journal of Climate*.
- Tonitto, Christina; Woodbury, Peter; Carter, Elizabeth. (2019). N balance as a metric for estimating N₂O flux from grain agroecosystems. In review, *Science of the Total Environment*.
- Knighton, James; Pleiss, Geoff; Steinschneider, Scott; Carter, Elizabeth; Lyon, Steven; Walter, M. Todd. (2019). Reproduction of regional precipitation and discharge extremes with meso-scale climate products via machine learning: an evaluation for the Eastern CONUS. *Journal of Hydrometeorology*.
- Carter, Elizabeth; Melkonian, Jeffrey; Steinschneider, Scott; Riha, Susan. (2018). Yield response to climate, management, and genotype: a large-scale observational analysis to identify climate-adaptive crop management practices in high-input maize systems. *Environmental Research Letters*, 13-11.
- Carter, Elizabeth; Steinschneider, Scott. (2018). Hydroclimatological Drivers of Extreme Floods on Lake Ontario. *Water Resources Research*. 54: 4461-4478
- Carter, Elizabeth; Hain, Christopher; Anderson, Martha; Steinschneider, Scott. (2018). A water balance based, spatiotemporal evaluation of terrestrial evapotranspiration products across the contiguous United States. *Journal of Hydrometeorology*. 19: 891-905.

Ruth Chen



Ph.D. (University of Michigan), Professor of Practice Civil & Environmental Engineering, Biomedical & Chemical Engineering

Specialty: Environmental Risk Assessment

E-mail: rchen02@syr.edu

- Teaching Interests: Risk assessment methodology, environmental toxicology, alternative energy, human health impact of exposures to environmental toxins, education in global response to energy and environmental challenges
- Research Interests: Risk Assessment, Environmental Regulation, Injurious Effect of Environmental Chemicals, Aerosol Delivery of Chemo-preventive Agents, Alternative Energy, Environmental Education, Metabolism of Hepatotoxic Aliphatic Halogenated Hydrocarbons

Sample Publications:

- Jingjie. Zhang, Huijing Fu,, Jing Pan, Yian Wang, Ruth Chen, Da-Ren Chen, and Ming You (2013). Aerosolized Iressa Decreases Lung Tumorigenesis with Minimal Adverse Systemic Effect, to be submitted to Lung Cancer Research.
- Jingjie Zhang, Huijing Fu, Jing Pan, Ruth Chen, Yian Wang, Da-Ren Chen, and Ming You (2013). Chemoprevention of Lung Carcinogenesis by the Combination of Aerosolized Budesonide and Oral Polyphenon E in A/J Mice, to be submitted to Molecular Carcinogenesis.
- Madelyn Ball, Ruth Chen, and Yinjie J Tang (2012). The “Some Sense” of Biofuels. J. Petroleum.Environmental Biotechnology, 3:4.
- Qi Zhang, Jing Pan, Jingjie Zhang, Pengyuan Liu, Yian Wang, Ruth Chen, Da-Ren Chen, Ronald Lubet, and Ming You (2011). Aerosolized Targretin Decreases Lung Tumorigenesis Without Increasing Triglyceride and Cholesterol Level in Serum, Lung Cancer Prevention, 4(2):270-276.
- Huijing Fu, Jingjie Zhang, Jing Pan, Qi Zhang, Yan Lu, Weidong Wen, Ronald A. Lubet, Eva Szabo, Ruth Chen, Yian Wang, Da-Ren Chen, and Ming You (2011), Chemoprevention of Lung Carcinogenesis by the Combination of Aerosolized Budesonide and Oral Pioglitazone in A/J Mice, Molecular Carcinogenesis, 50(12):913-921.
- H. Fu, J. He, F. Mei, Q. Zhang, Y. Hara, S. Ryota, R. A. Lubet, R. Chen, Da-Ren Chen, and M. You (2009). Anti-lung Cancer Effect of Epigallocatechin-3-gallate is Dependent on Its Presence in a Complex Mixture (Polyphenon E), Cancer Prevention Research, 2(6):531-537. (Cover page article)

David G. Chandler



Ph.D. (Cornell University), Associate Professor of Civil and Environmental Engineering
Specialty: Hydrology

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- Teaching Interests: Hydrology, Water Resources Engineering, Sustainable Water Systems, Environmental Sensing
- Research Interests: Climate and Anthropogenic Impacts on Hydrology, Soil Physics, Alternative Waste Treatment Systems, Green Infrastructure

Sample Publications:

- Shafiei Shiva, J.; Chandler, D.G. Projection of Future Heat Waves in the United States. Part I: Selecting a Climate Model Subset. *Atmosphere* 2020, 11, 587
- Fayaz, N., Condon, L.E. & Chandler, D.G. Evaluating the sensitivity of projected reservoir reliability to the choice of climate projection: A case study of Bull Run Watershed, Portland, Oregon. *Water Resour Manage* 34, 1991-2009 (2020). [Link.](#)
- Hwang, K., D.G. Chandler, & SB Shaw. (2020) Patch scale evapotranspiration of wetland plant species by ground-based infrared thermometry. *Agricultural and Forest Meteorology* (287), ISSN 0168-1923, [Link.](#)
- Chandler, D.G., Y. Cheng, M.S. Seyfried, M.D. Madsen, C.E. Johnson, and C.J. Williams. 2018. Seasonal wetness, soil organic carbon, and fire influence soil hydrological properties and water repellency in a sagebrush-steppe ecosystem. *Water Resources Research*, 54. [Link.](#)
- Chandler, D.G., M.S. Seyfried, J.P. McNamara, and K. Hwang. 2017. Inference of soil hydrologic parameters from long term soil moisture records. *Frontiers in Earth Science*: 5: 25. doi: 10.3389/feart.2017.00025.

Andria Costello Staniec



Ph.D. (California Institute of Technology), Department Chair, Civil Engineering Graduate Program Director, Associate Professor of Civil & Environmental Engineering
Specialty: Environmental Microbiology, Biotechnology, Engineering & STEM Education
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- Teaching Interests: Environmental Microbiology, Environmental Chemistry, Environmental Engineering, Biotechnology, Bioremediation
- Research Interests: Environmental Microbiology, Engineering & STEM Education

Sample Publications:

- Doerr, H., J. Arleback, and A. Costello Staniec. 2014. Design and effectiveness of modeling-based mathematics in a summer bridge program. *J. Env. Educ.* 103(1):92-114.
- Murdoch, R.W. and A. Costello Staniec. 2013. Diversity and community analysis of ammonia oxidizing bacteria in a streambed surrounding an artificial dam. *J. Env. Mgmt.* 127:237-243.
- Fisk, M.C., T.J. Fahey, J.H. Sobieraj, A. Costello Staniec, T.O. Crist. 2011. Rhizosphere disturbance influences fungal colonization and community development on dead fine roots. *Plant Soil.* 341:279-293.
- Lindner, A.S., A. Pacheco, H.C. Aldrich, A. Costello Staniec, I. Uz, A.V. Ogram, and D.J. Hodson. 2007. *Methylocystis hirsuta* sp. nov., a novel methanotroph isolated from a groundwater aquifer. *Intl. J. Sys. Evol. Microbiol.* 57:1891-1900.

Joan V. Dannenhoffer



M.S.C.E (University of Connecticut), MBA (Rensselaer Polytechnic Institute), P.E., Civil Engineering Undergraduate Program Director, Associate Teaching Professor of Civil and Environmental Engineering

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- Teaching Interests: Engineering Mechanics, Engineering Materials
- Research Interests: Engineering Education Assessment and Teaching Methods

Sample Publications:

- Hasenwinkel, J. M. , Cadwell, K., Dannenhoffer, JV, Carranti, F., Isik, C., "Meeting the Graduate IOK+ Challenge: Enhancing the Climate for Persistence and Success in Engineering (ECLIPSE)", American Society for Engineering Education Annual Conference Proceedings, [Link.](#), paper #23346, June 2018.
- MacNamara, S. C., & Dannenhoffer, J. V., Scaling Up: The Design Competition as a Tool for Teaching Statics Paper presented at 2015 ASEE St. Lawrence Section Conference, Syracuse, NY.
- MacNamara, S. C., & Dannenhoffer, J. V., Hands-On Learning for Statics in the Smaller Classroom and Potential Scale-Up to the Larger Lecture Paper presented at 2013 ASEE Northeast Section Conference, Norwich, VT.
- MacNamara, S.C. and Dannenhoffer, J.V., "First Encounters: Statics as a Gateway to Engineering" American Society for Engineering Education Annual Conference Proceedings, Session T553, June 2013.
- MacNamara, S.C. and Dannenhoffer, J. V., "Hands-On Learning for Statics in the Smaller Classroom and Potential Scale-Up to the Larger Lecture", American Society for Engineering Education Northeast Section Conference, March 2013.

Cliff I. Davidson



Ph.D. (California Institute Technology), Program Director of Environmental Engineering, Professor of Civil and Environmental Engineering and Center of Excellence in Environmental and Energy Systems, Thomas C. and Colleen L. Wilmot Chair of Engineering; Director, Center for Sustainable Engineering

Specialty: Environmental Engineering

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- Teaching Interests: Environmental Engineering, Sustainable Engineering
- Research Interests: Green Infrastructure, Environmental Flows of Chemicals, Air Quality, Sustainable Urban Development, Engineering Education

Sample Publications:

- Squier-Babcock, Mallory and Cliff I. Davidson, Hydrologic performance of an extensive green roof in Syracuse, NY, *Water*, Vol. 12, Number 6, [Link](#), May 28, 2020.
- Johnson, Alexander J. and Cliff I. Davidson, Measuring atmospheric dry deposition with large surrogate surfaces for improved time resolution, *Atmospheric Environment*, Vol. 198, Number 1, pages 489-495, [Link](#), Feb. 2019.
- Markolf, Samuel A., Mikhail V. Chester, Daniel A. Eisenberg, David M. Iwaniec, Benjamin L. Ruddell, Cliff I. Davidson, Rae Zimmerman, Thaddeus R. Miller, and Heejun Chang, Interdependent Infrastructure as Linked Social, Ecological, and Technological Systems (SETS) to Address Lock-In and Enhance Resilience, *Earth's Future*, Vol. 6, Issue 12, pages 1638-1659, [Link](#), December 2018.
- Rosenzweig, Bernice R., Lauren McPhillips, Heejun Chang, Chingwen Cheng, Claire Welty, Marissa Matsler, David Iwaniec, and Cliff I. Davidson, Pluvial Flood Risk and Opportunities for Resilience, *Wiley Interdisciplinary Reviews: Water*, Vol. 5, Issue 6, [Link](#), July 2018.
- Flynn, Carli D., Cliff I. Davidson, and Sharon Dotger, Development and psychometric testing of the Rate and Accumulation Concept Inventory, *Journal of Engineering Education*, Vol. 107, Issue 3, [Link](#), September 29, 2018.
- Davidson, C.I., Brad R. Allenby, Liv M. Haselbach, Miriam Heller, and William E. Kelly, Educational materials on sustainable engineering: do we need a repository? *Elementa*, February 23, 2016, DOI 10.12952/journal.elementa.000089.

Charles T. Driscoll



Ph.D. (Cornell University), University and Distinguished Professor of Environmental Systems Engineering, National Academy of Engineering

Specialty: Environmental Engineering, Civil Engineering, Environmental Science

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- Teaching Interests: Environmental Engineering, Environmental Chemistry, Biogeochemistry, Environmental Systems Modeling
- Research Interests: Aquatic Chemistry, Biogeochemistry, Climate Change Effects on Ecosystems, Green Water Infrastructure, Air Pollution Effects on Ecosystems, Mercury in the Environment, Soil Chemistry, Water Quality Modeling

Sample Publications:

- Gerson, J. R., C. T. Driscoll, H. Hsu-Kim and E. Bernhardt. 2018. Senegalese artisanal gold mining leads to elevated total and methylmercury concentrations in soils, sediments and rivers. *Elementa: Science of the Anthropocene*. 6(11):1-14. doi: 10.1525/elementa.274.
- Eger, C., D. G. Chandler and C. T. Driscoll. 2017. Hydrologic processes that govern stormwater infrastructure behavior. *Hydrological Processes*. 31:4492-4506. doi:10.1002/hyp.11353.
- Driscoll, C. T., K. M. Driscoll, H. Fakhraei and K. Civerolo. 2016. Long-term temporal trends and spatial patterns in the acid-base chemistry of lakes in the Adirondack region of New York in response to decreases in acidic deposition. *Atmospheric Environment*, 146:5-14. doi:10.1016/j.atmosenv.2016.08.034.
- Driscoll, C. T., K. F. Lambert, D. Burtraw, J. J. Buonocore, S. B. Reid, and H. Fakhraei. 2015. US power plant carbon standards and clean air and health co-benefits. *Nature Climate Change* 5:535-540.

Chris E. Johnson



Ph.D. (University of Pennsylvania), Associate Provost for Academic Affairs and Professor of Civil and Environmental Engineering

Specialty: Environmental Engineering

E-mail: cejohns@syr.edu

- Teaching Interests: Environmental Chemistry, Soil Chemistry, Statistics
- Research Interests: Biogeochemistry, Soil Chemistry, Natural Organic Matter

Sample Publications:

- Li, W. and C.E. Johnson. Relationships among pH, aluminum solubility and aluminum complexation with organic matter in acid forest soils of the northeastern United States. *Geoderma*. 271:234-242. {2016}
- Shao, S., C.T. Driscoll, C.E. Johnson, T.J. Fahey, J.J. Battles, and J.D. Blum. "Long-term responses in soil solution and streamwater chemistry at Hubbard Brook after experimental addition of wollastonite." *Environmental Chemistry*. 13:528-540. {2016}
- Fahey, T.J., A.K. Heinz, J.J. Battles, M.C. Fisk, C.T. Driscoll, J.D. Blum, and C.E. Johnson. "Fine root biomass declined in response to restoration of soil calcium in a northern hardwood forest." *Canadian Journal of Forest Research*. 738-744. (2016)
- Leys, 8., G.E. Likens, C.E. Johnson, J.M. Craine, 8. Lacroix, and K.K. McLaughlan. "Natural and anthropogenic drivers of calcium depletion in a northern forest during the last millennium." *Proceedings of the National Academy of Sciences*. 113:6934-6938. (2016)
- Gianfagna, C.C., C.E. Johnson, and D.G. Chandler. "Watershed area ratio accurately predicts daily streamflow in nested catchments in the Catskills, New York." *Journal of Hydrology: Regional Studies* 4:583-594. (2015)

Christa Kelleher



Ph.D. (The Pennsylvania State University), Assistant Professor of Earth Sciences and Civil and Environmental Engineering

Specialty: Hydrology

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- Teaching Interests: Physical Hydrology, Hydrologic Systems Modeling, Small Unoccupied Aerial Systems
- Research Interests: Watershed Hydrology, Riverine Responses to Climate and Land Use Change, Water Quality, Environmental Model Diagnostics and Uncertainty, Small Unoccupied Aerial Systems, Scientific Visualization

Sample Publications:

- J. L. A. Knapp, C. Kelleher (2020). A perspective on the future of transient storage modeling: Let's stop chasing our tails. *Water Resources Research*, 56, e2019WR026257. [Link](#).
- L. Condon, K. Markovich, C. Kelleher, J. J. McDonnell, G. Ferguson, J. McIntosh (2020). Where is the bottom of a watershed? *Water Resources Research*, 56, e2019WR026010. [Link](#).
- C. Kelleher, H. Golden, S. Burkholder, W. Shuster (2020). Urban sponges: vacant lands impart hydrological benefits across city landscapes. *Nature Communications*, 11, 1563. [Link](#).
- C. Kelleher, C. & L. McPhillips (2019). Exploring the application of topographic indices in urban areas as indicators of pluvial flooding locations. *Hydrological Processes*. 1- 15. [Link](#).
- C. Kelleher, A. Ward, J. L. A. Knapp, P. J. Blaen, M. J. Kurz, J. D. Drummond, et al. (2019). Exploring tracer information and model framework trade-offs to improve estimation of stream transient storage processes. *Water Resources Research*, 55, 3481-3501. [Link](#).

Eric M. Lui



Ph.D. (Purdue University), Laura J. and L. Douglas Meredith Professor for Teaching Excellence, Associate Professor of Civil and Environmental Engineering

Specialty: Structural Engineering

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- Teaching Interests: Structural Analysis and Design, Computer Aided Engineering, Structural Stability, Structural Dynamics, Structural Reliability, Earthquake Engineering, Green Technology and Sustainability
- Research Interests: Nonlinear Analysis, Numerical Methods, Steel Structures, Damage Identification and Quantification, Structural Dynamics and Earthquake Engineering

Sample Publications:

- Wang, F. and Lui, E.M. “Experimental study of the post-fire mechanical properties of Q690 high strength steel,” *Journal of Constructional Steel Research*, 2020, 167, Article 105966. [Link](#)
- Liu, W.-X. and Lui, E.M. “Mathematical modeling and parametric study of magnetic negative stiffness dampers,” *Advances in Structural Engineering*, 2020, 23(8):1702-1714. [Link](#)
- Chen, Y.-L., Chen, Z.-P., Xu, J.-J., Lui, E.M., and Wu, B. “Performance evaluation of recycled aggregate concrete under multiaxial compression,” *Construction and Building Materials*, 2019, 229, Article 116935. [Link](#)
- Ma, H.W., Wang, J.W., Lui, E.M., Wan, Z.Q, and Wang, K. (2019) “Experimental Study of the Behavior of Beam-column Connections with Expanded Beam Flanges,” *Steel and Composite Structures*, 31(3), 319-327. (DOI: [Link](#))
- El Masri, O.Y. and Lui, E.M. (2019) “Influence of Imperfections on the Flexural Resistance of Steel Delta Girders,” *Advanced Steel Construction*, 15(2), 157-164. (DOI:10.18057/IJASC.2019.15.2.5)
- El Masri, O.Y. and Lui, E.M. (2019) “Cross-Section Properties and Elastic Lateral-Torsional Buckling Capacity of Steel Delta Girders,” *International Journal of Steel Structures*, 19(3), 914-931. (DOI: [Link](#))

Sinead C. Mac Namara



Ph.D. (Princeton University), Associate Dean for Student Affairs, Associate Professor of Civil and Environmental Engineering,

Specialty: Structural Design

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- Teaching Interests: Structural Analysis and Design
- Research Interests: Collaborative practice in architecture and engineering, Innovation and creativity in structural engineering education, Structural engineering design and structural art, Structural performance of shell structures.

Sample Publications:

- S.C. Mac Namara. L. D. Bowne. Controlled Chaos: Modeling Interdisciplinary Practice for Architecture and Engineering Students in a Real World Community Engaged Design Project. Proceedings of the American Society for Engineering Education 2015 Annual Conference and Exposition, Seattle, WA, June 2015.
- S.C. Mac Namara. J. V. Dannenhoffer, Scaling Up: The Design Competition as a Tool for Teaching Statics. Proceedings of the American Society for Engineering Education St, Lawrence Division Conference, Syracuse, April 2015.
- S.C. Mac Namara. L. D. Bowne. Book Chapter “Play Perch” in Green, Hidden and Above - The Most Exceptional Tree-houses. Sibylle Kramer, Author. 2015. Braun Publishing.
- S.C Mac Namara, C. J. Olsen. Collaborations in Architecture and Engineering. Albeena Magazine, Saudi Arabia. March 2013.
- S.C. Mac Namara, C. J. Olsen. Collaborations in Architecture and Engineering . Routledge July 2014.
- S.C. Mac Namara. Expanding Expectations: A Community Service Accessible Design-Build Project as an Instigator of Curricular Change. Proceedings of the BTES Building Technology Educators Society Conference 2013 “Tectonics of Teaching” Bristol, R. I, July 2013.

Dawit Negusse



Ph.D. (University of British Columbia), Professor of Civil and Environmental Engineering

Specialty: Geotechnical Engineering

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- Teaching Interests: Geofoam Geotechnics, Soil Mechanics, Geotechnical Engineering Design, Transportation Engineering
- Research Interests: Properties and Applications of Geofoams, Geotechnical Engineering Design, and Forensic Engineering Investigations

Sample Publications:

- Negusse, D., Andrews, L., Singh, S., and Liu, C. (2019). "Forensic Investigation of a Wide Culvert Reconstruction Failure." *ASCE Journal of Pipeline Systems*, Vol. 10, No. 3.
- Liu, C., and Negusse, D. (2018). "Effects of Installation of Different Density Geofoam and Continuous Vertical Gaps." *Proceedings of the 5th International Conference on Geofoam*, Springer International, Switzerland.
- Temesgen, E., Andrews, L., and Negusse, D. (2018). "Non-Destructive Testing for EPS Geofoam Quality Assurance." *Proceedings of the 5th International Conference on Geofoam*, Springer International, Switzerland.
- Birhan, A., and Negusse, D. (2014). "Effect of Confinement on the Creep Behavior of EPS Geofoam." *ASTM Geotechnical Testing Journal*, Vol. 37, No. 6.
- Stuedlein, A. and Negusse, D. (2013) "Use of EPS Geofoam for Support of a Bridge," *American Society of Civil Engineers, Geotechnical Special Publication No. 230*.

Zhao Qin



Ph.D., (Massachusetts Institute of Technology), Assistant Professor of Civil and Environmental Engineering

Specialty: Structural Engineering

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- Teaching Interests: Multiscale Material Modeling and Simulations, Engineering Materials, Structures and Materials, Mechanics of Solids
- Research Interests: Development of advanced computational modeling methods for designing new materials of advanced material functions.

Sample Publications:

- J. Wu, Z. Qin, Liangliang Qu, Hao Zhang, Fei Deng, Ming Guo (2019), Natural hydrogel in American lobster: a soft armour with high toughness and strength, *Acta Biomaterialia*, Vol 88, pp. 102-110
- Z. Qin, M. J. Buehler (2019), Analysis of the vibrational and sound spectrum of over 100,000 protein structures and application in sonification, *Extreme Mechanics Letters*, Vol 29, 100460
- Z. Qin, M. Buehler (2018), Hierarchical nanostructures for functional materials (editorial), *Nanotechnology*, Vol. 29, paper #: 280201
- Su, Z. Qin, T. Saraceno, A. Krell, R. Muhlethaler, A. Bisshop and M. J. Buehler (2018), Imaging and analysis of a three-dimensional spider web architecture, *Journal of the Royal Society Interface*, DOI: 10.1098/rsif.2018.0193
- Y. Han, M. Li, G. Jung, M. A. Marsalis, Z. Qin, M. J. Buehler, L. Li, D. A. Muller (2018), Sub-Nanometer Channels Embedded in Two-Dimensional Materials, *Nature Materials*, Vol. 17, pp 129-133
- E. Gao, S. Lin, Z. Qin, M. J Buehler, X. Feng, Z. Xu (2018), Mechanical exfoliation of two-dimensional materials, *Journal of the Mechanics and Physics of Solids*, Vol. 115, pp. 248-262
- Z. Qin, G. Jung, M. J. Kang, M. J. Buehler (2017), The mechanics and design of light-weight three-dimensional graphene assembly, *Science Advances*, Vol. 3, paper #: e1601536

Baris Salman



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Specialty: Civil Engineering/Construction Engineering and Management

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- Teaching Interests: Construction Project Management and Scheduling, Construction Equipment, Sustainable Infrastructures and Asset Management, Civil Engineering Materials, Principles of Transportation Engineering
- Research Interests: Infrastructure Asset Management; Risk Assessment and Management; Trenchless Inspection, Repair, and Renewal Methods; Accelerated and Fast Track Construction

Sample Publications:

- Salman, B., Salem, O. and He, S. (2020) "Project-level sustainable asphalt roadway treatment selection framework featuring a flowchart and Analytic Network Process." *Journal of Transportation Engineering, Part B: Pavements*, Vol:146, Issue:3, ASCE. <https://doi.org/10.1061/JPEODX.0000202>
- Keskin, B, and Salman, B. (2020) "BIM implementation framework for smart airport life cycle management." *Transportation Research Record: Journal of the Transportation Research Board*, Vol.2674, Issue:6. <https://doi.org/10.1177/0361198120917971>
- Keskin, B., Salman, B., and Ozorhon, B. (2020) "Airport project delivery within BIM-centric construction technology ecosystems." *Engineering, Construction and Architectural Management, Emerald*. <https://doi.org/10.1108/ECAM-11-2019-0625>
- He, S., Salem, O., and Salman, B. (under review) "Decision support framework for project-level pavement maintenance and rehabilitation through integrating Life Cycle Cost Analysis and Life Cycle Assessment." *Journal of Transportation Engineering, Part B: Pavements, ASCE*.
- He, S., Salem, O., and Salman, B. (2020) "Project-level highway treatment selection framework featuring life cycle cost analysis and life cycle assessment." 99th Annual Conference of Transportation Research Board (TRB), Washington, D.C.

Svetoslava Todorova



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Specialty: Environmental Engineering

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- Teaching Interests: Environmental Engineering, Environmental Chemistry, Sustainable Engineering, Urban Drainage and Stormwater Design
- Research Interests: Aquatic Chemistry, Mercury Cycling and Bioaccumulation, Environmental Policy, Sustainable Infrastructure

Sample Publications:

- Todorov, D., Driscoll, C.T., and S. Todorova. 2018. Long-term and seasonal hydrologic performance of an extensive green roof. *Hydrological Processes* 32(16): 2471-2482.
- Todorov, D., Driscoll, C. T., Todorova, S., and Montesdeoca. 2018. Water quality function of an extensive vegetated and an impermeable, high-albedo roof. *Science of the Total Environment* 625: 928-939.
- Martinez, G., McCord, S., Todorova, S., Driscoll, C.T., Wu, S., Araujo, J., Vega, C., and L. Fernandez. 2018. Mercury contamination in riverine sediments and fish associated with artisanal and small-scale gold mining in Madre de Dios, Peru. *International Journal of Environmental Research and Public Health* 15(8).
- Todorova, S., Driscoll, C.T., Matthews, D.A., and Effler, S.W. 2015. Zooplankton community changes confound the biodilution theory of methylmercury accumulation in a recovering mercury-contaminated lake. *Environmental Science and Technology* 49 (7): 4066-4071.
- Todorova, S., Driscoll, C.T., O'Donnell, S., Effler, S. W., Gindlesperger, S. and D. Todorov. 2014. Shifts in the long-term supply of mercury species in the upper mixed waters of a recovering lake, *Environmental Pollution* 185:314-21.
- Todorova, S., Driscoll, C.T., Hines, M., Matthews, D. A., and S. W. Effler. 2009. Evidence for regulation on monomethyl mercury by nitrate in a seasonally-stratified, eutrophic lake, *Environmental Science and Technology* 43(17):6572-6578.
- Todorova, S., Siegel, D., and A.M. Costello. 2005. Microbial Fe (III) reduction in a minerotrophic wetland - geochemical controls and involvement in organic matter decomposition. *Applied Geochemistry* 20:1120-1130.

Teng Zeng



Ph.D. (University of Minnesota), Assistant Professor of Civil and Environmental Engineering

Specialty: Environmental Engineering

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- Teaching Interests: Water Treatment Processes, Environmental Organic Chemistry, Environmental Mass Spectrometry
- Research Interests: Occurrence and Fate of Organic Contaminants, Formation and Control of Disinfection Byproducts, Aquatic Photochemistry

Sample Publications:

- Zeng, T.; Mitch, W. A., Impact of nitrification on the formation of N-nitrosamines and halogenated disinfection byproducts within distribution system storage facilities. *Environmental Science & Technology*, 2016, 50, 2964-2973.
- Zeng, T.; Plewa, M. J.; Mitch, W. A., N-Nitrosamines and halogenated disinfection byproducts in U.S. full advanced treatment trains for potable reuse. *Water Research*, 2016, 101, 176-186.
- Zeng, T.; Glover, C. M. (equal contribution); Marti, E.; Woods, G.; Karanfil, T.; Mitch, W. A.; Dickenson, E. R. V., Relative importance of different water categories as sources of N-nitrosamine precursors. *Environmental Science & Technology*, 2016, 50, 13239-13248.
- Zeng, T.; Li, R. J.; Mitch, W. A., Structural modifications to quaternary ammonium polymer coagulants to inhibit N-nitrosamine formation. *Environmental Science & Technology*, 2016, 50, (9), 4778-4787.
- Zeng, T.; Mitch, W. A., Oral intake of ranitidine increases urinary excretion of N-nitrosodimethylamine. *Carcinogenesis*, 2016, 37, 625-634.

13.2 Other Faculty

Samuel P. Clemence

Ph.D. (Georgia Institute of Technology), Emeritus Professor, Laura J. and L. Douglas Meredith Professor for Teaching Excellence

- Teaching Interests: Geotechnical Engineering, Soils and Foundation Design, Construction Management in the Middle East, History of Technology, Leonardo da Vinci Artist and Engineer, Engineering History of the Erie Canal
- Research Interests: Anchor Foundations, Properties of Collapsible Soils, In Situ Testing, Slurry Wall Containment Systems and Movement of Organics in Soil/Rock Systems

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M.S.E.E. (Syracuse University), Research Faculty

- Teaching Interests: Environmental Engineering
- Research Interests: Environmental Systems

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Ph.D. (Syracuse University), Adjunct Professor/Bridge Engineer

- Teaching Interests: Bridge Engineering, Finite Element Analysis, Steel Design
- Research Interests: Steel Structures, Structural Stability, Computer-Aided Analysis and Design Methods, Bridge Engineering

Dennis P. Joyce, LS

Joyce Land Surveying, Adjunct Faculty

Teaching Interests: Surveying and Mapping

Lance S. Ketcham, P.E.

M.S. (Syracuse University), Adjunct Faculty, Practitioner in Residence

Principal Environmental/Geotechnical Design Engineer and National Expert, ARCADIS

- Teaching Interests: Engineering Design, Project Management, Construction Management, Contract Administration, Site Investigation, Construction Materials Engineering, Geotechnical Engineering, Dredging Design, Engineering Ethics and Technical Communications.

Raymond D. Letterman

Ph.D. (Northwestern University), Emeritus Professor

- Teaching Interests: Environmental Engineering Fundamentals, Water Supply Design, Environmental Chemistry
- Research Interests: Solid-Liquid Separation Processes, Potable Water Supply, Applied Surface Chemistry

James A. Mandel

Ph.D. (Syracuse University), Emeritus/Research Professor

- Teaching Interests: Finite Element Analysis, Plate and Shell Structures
- Research Interests: Composite Materials, Fiber Reinforcement Concrete, Curved Bridge Design, Finite Element Analysis

Peter W. Plumley

Ph.D. (UC-Santa Cruz), Research Associate Professor

- Teaching Interests: Geology/Tectonics, Renewable Energy, Climate Change, Freshman Engineering
- Research Interests: Science Education, K-12 Outreach

Suresh Santanam

Sc.D. (Harvard University), Associate Professor, Biomedical and Chemical Engineering Department; Director, Industrial Assessment Center

- Teaching Interests: Air Pollution, Environmental Regulations, Control System Design, Green Engineering, Process Control, Experimental Methods and Statistics, Advanced Chemical Engineering Design, Industrial Toxicology
- Research Interests: Air Quality Monitoring and Control, Indoor Air Quality, Human Performance and IAQ, Energy Efficiency, Green Chemical Processes, Air Pollution Exposure Modeling, Source Apportionment

Robert Tanchak

M.S. Manufacturing Engineering (Syracuse University) Adjunct Faculty

- Teaching Interests: Statics, Dynamics, Engineering Computations, Production/MFG processes, Materials

Eric Wing

B. Tech. (SU NY-Delhi), Adjunct Faculty

C&S Companies

- Teaching Interests: BIM, Advanced BIM

Abdallah H. Yabroudi

M.S. (Syracuse University), Adjunct Faculty

CEO and Managing Director, Dubai Contracting Company

- Teaching Interests: Construction Engineering and Project Management