CIVIL and ENVIRONMENTAL ENGINEERING

AUBURN UNIVERSITY
SAMUEL GINN COLLEGE OF ENGINEERING

GRADUATE PROGRAM INFO SESSION
Who’s Interested in Grad School?

A) Yes, I’m planning to apply
B) Yes, but not now
C) Maybe
D) Nope – Just here for the Pizza
E) What is a Grad School?
Why get a graduate degree?

- Focused education in specific area(s) of interest
- Generate new knowledge, improved practices
- Develop skills in solving open ended problems
  - Intellectual curiosity
  - Hands-on activities/field work
  - Advanced technical competency
- Career advancement – higher potential for growth
- Higher starting salary
- Change in career
- Interest in research/teaching/influencing lives
Why Graduate School?

- Increase Knowledge in your Area of Interest
- Increase Ability to Take on Challenging Work
- Develop Professional Skills
- Earning Potential

Lifetime Earnings by Degree
Why CEE?

- The Need for Civil & Environmental Engineers will Continue to Increase in Future Decades Due to:
  - Globalization
  - Population Dynamics
  - Environmental Concerns
  - Technological Revolution
  - Urban Development

PERCENT CHANGE IN EMPLOYMENT, PROJECTED 2020-2030
U.S. BUREAU OF LABOR STATISTICS

- ALL OCCUPATIONS: 7.70%
- ALL ENGINEERS: 7.40%
- CIVIL ENGINEERS: 8.20%
ASCE Policy Statement 465

- “Raise the Bar” Initiative

- The civil engineering profession continues to undergo significant, rapid, and revolutionary changes

- A master’s degree in civil engineering or a civil engineering specialty are needed to have a greater breadth of capability and specialized technical competence to meet obligations to protect public health, safety, and welfare

- +30 credits beyond B.S. degree should be required to sit for the P.E.
Licensure

- 1 year credit for MS
- additional 1 year for Ph.D.
Choosing a Graduate Program

- Quality of Program
  - Faculty, curriculum
  - Facilities, reputation
- Faculty in your area of interest
- Cost
  - Tuition
  - Living Expenses
- Location
SAMUEL GINN COLLEGE OF ENGINEERING

30,460 Total Students
6,400 Engineering Students
21% Campus Representation
13 Engineering Degrees

source: ASEE, U.S. News

by the numbers
CIVIL & ENVIRONMENTAL ENGINEERING

498 Undergrad Students
124 Graduate Students
25 Total Faculty

$21.9 million in research expenditures - 2020
CEE Disciplines

- Construction Engineering and Management
- Environmental Engineering
- Geotechnical Engineering
- Pavements and Materials Engineering
- Structural Engineering
- Transportation Engineering
- Water Resources Engineering
Graduate Degrees Offered

- M.C.E (On-campus and distant/online options)
- M.S.
- Ph.D.

<table>
<thead>
<tr>
<th>Degree</th>
<th>hrs.</th>
<th>Requirements</th>
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<tbody>
<tr>
<td>M.C.E. (non-thesis)</td>
<td>30</td>
<td>All coursework</td>
</tr>
<tr>
<td>M.S.</td>
<td>30</td>
<td>26–24 credits coursework + 4–6 research credits</td>
</tr>
<tr>
<td>Ph.D.</td>
<td>60</td>
<td>≥30 credits coursework + ≥10 research credits</td>
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Accelerated BS/MS Program

- Matriculate into the accelerated program during the first semester of senior year.

- Enroll in up to 6-hour graduate CIVL courses, which will replace 6-hour Technical Electives required in the civil engineering bachelor-degree curriculum.

- Students apply to graduate program before or in the last semester of their undergraduate curriculum.

- Admission Qualifications:
  - 45 credit hours earned (min.)
  - 3.4 overall GPA
Funding your Education

- **Financial Support**
  - Tuition Fellowship
  - Teaching Assistantships
  - Research Assistantships
  - Fellowships

- **Fellowships**
  - Generally for PhD students or as supplement to assistantships
  - Amount from $5,000 to $25,000
  - President Scholars (three years)
### Funding your Education

- **Teaching Assistant (GTA)**
  - Duties: teaching/supervising in labs and grading

- **Research Assistant (GRA)**
  - Duties: conduct research

<table>
<thead>
<tr>
<th>Assistantships</th>
<th>Appointments</th>
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<tbody>
<tr>
<td><strong>Teaching Assistant</strong></td>
<td>1/2 time (20 hrs/wk)</td>
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<tr>
<td></td>
<td>1/4 time (10 hrs/wk)</td>
</tr>
<tr>
<td><strong>Research Assistant</strong></td>
<td>1/2 time (20 hrs/wk)</td>
</tr>
<tr>
<td></td>
<td>1/4 time (10 hrs/wk)</td>
</tr>
</tbody>
</table>
Graduate Research Assistant Expectations

▪ Design, Perform, Coordinate Research Project(s)
▪ Take Classes (1-3 per Semester)
▪ Write…a lot…and then Present
  ▪ Thesis / Dissertation
  ▪ Papers for Publication
  ▪ Research Reports
  ▪ Research Proposals
▪ Travel
  ▪ Conferences
  ▪ Training Events
▪ Conduct Training
▪ “Other”
Applications Due
- By March 31 (Fall) or Sept. 30 (Spring)
  - Online Application

GRE Exam

TOEFL Exam

Statement of Purpose

Three Letters of Recommendation (Waive for AU CEE students)

Resume

Undergraduate
Academic Requirements

- Undergraduate GPA ≥ 2.75 (justification for lower GPA)
- GRE V – 140 Q – 150 AW – 3.0

TOEFL/IELTS (International students)
- Paper (pBT) 550
- Computer (cBT) 213
- Internet (iBT) 79
- IELTS 6.5

(TOEFL waived if BS/MS from country where English is the official language)
National Academy of Engineering Grand Challenges

**ENERGY**
- Solar energy
- Fusion energy

**ENVIRONMENT**
- Clean water
- Nitrogen cycle
- Carbon sequestration

**HEALTH**
- Health informatics
- Better medicines

**INFRASTRUCTURE**
- Improve urban infrastructure

**INNOVATION**
- Reverse engineer the brain
- Tools of scientific discovery

**INFORMATION**
- Cyber security
- Virtual reality
- Personalized learning
Since 1985, the HRC has improved the safety, user friendliness, sustainability, longevity, and return on investment of Alabama’s highway infrastructure.
Advanced Structural Engineering Laboratory

Testing Full-Scale Specimens

Making Test Specimens

Hurricane Damage Assessment
Dr. Beckingham group at the National Carbon Capture Center

Dr. Zou and students at the 2021 AL-MS Water Conference

Ms. Yangmo Zhu is the winner of the 2021 Geosyntec Best Student Paper Award ($1,000)

Dr. Capiro and students sampling for PFAS-impacted aquifer materials at Robins AFB
Three-dimensional EFDC Model

Simulated Age of Water

(c) Mean inflows

0 - 10
10 - 20
20 - 30
30 - 40

40 - 50
50 - 60
60 - 70

Styx River
Perdido River
Elevenmile Creek
Upper Perdido Bay
Bayou Marcus

Testing methods for measuring wetland sedimentation rates

Adverse air-water interactions in urban water systems leading up geysering incidents.

Studying the hydrology of geographically isolated wetlands
Preparing for Grad School: Advice

- Take the GRE early, in case you need to take it again
- Look for undergraduate research experiences
  - Makes your application more competitive
  - Build connections for future letter writers
- Apply as early as possible. Many departments will consider early applications first for assistantships.
  - For Fall admission, apply the previous December (or even earlier)
- Make contact with a professor you want to work with
  - Personal contact will make sure you are remembered when assistantships are awarded
- Talk to the departmental Graduate Program Officer about the department’s specific admission standards
- Research graduate programs, making visits or talking to graduate students if possible
Dear Dr. Micheal,

Having gone through your research areas on AUBURN STATE UNIVERSITY Website in which some of your previous works and papers are in alignment with my research interest, I humbly write to notify you of my interest to undertake my PhD degree under your supervision.

I am xxxxx from xxxxx, I obtained my BSc from the Department of Architecture, xxxxx, where I graduated with Second Class Class Upper.

My research interests includes but not limited to Construction Management and project management, Automation in Construction, Smart cities, Sustainable infrastructure development, Resilience in infrastructure, AI and Data Analytics etc.. However, I must admit that your expertise and skills align with mine and since you have done extensive work in this field, I would like to be supervised by you so as to produce publishable results. Attached herewith are my CV.

Thank you for your time as I anticipate your favorable consideration.

Dr. Perez,

I came across one of your presentations on the Erosion and Sediment Control Testing Facility and I am very interested in learning more about the research projects taking place at the facility.

I’m currently a senior in civil engineering at Florida State and for the last year I’ve been interning under a coastal projects manager at the Florida Department of Environmental Protection designing coastal erosion prevention projects for the Florida Park Service. The opportunities at the AU-ESCTF seem to be a great fit between my practical experience and interests in construction engineering and management.

I am in the process of applying to graduate programs and would be very interested in learning more about the opportunities that Auburn offers.

Thanks,

Mike Perez
Senior, Civil Engineering - FSU
For More Info:

Graduate Program Officer
Dr. Xing Fang
Water Resources
aub.ie/cee-grad
graduate.auburn.edu/

Graduate Coordinators for Each Specialty Area

Dr. Bowers
Pavement / Materials

Dr. Zhao
Environmental

Dr. Perez
Construction

Dr. Montgomery
Geotechnical

Dr. Davidson
Structures

Dr. Zhou
Transportation