AE3 connects faculty and students to innovative teaching in the College of Engineering at Illinois.

- We support faculty-driven communities of practice that aspire to creative changes in curriculum and instruction.
- We provide students with authentic learning experiences that cross departmental borders, building both community and awareness of real-world engineering challenges.
- We publicize successful initiatives in the teaching and learning of engineering.

AE3 is under the Undergraduate Programs Office.

**AE3 Staff**

- Laura Hahn: Director
- Chris Migotsky: Coordinator of Faculty Programs
- Gretchen Forman: IEFX Program Coordinator
- Ann-Perry Witmer: IEFX Faculty
- Joe Bradley: IEFX Faculty
- Carleen Sacris: CBTF Coordinator
- Michael Redden: CBTF Head Proctor
- Geoffrey Herman: AE3 Affiliate
- Kristie Harris: Office Support Specialist

**AE3 Programs**

- Collins Scholars
- Strategic Instructional Innovations Program (SIIP)
- Teaching Professionals Program (TPro2)
- Education Innovation Fellows (EIFs)
- Student Consultants on Teaching (SCOTs)
- Illinois Engineering First-Year Experience (IEFX)
- Computer-Based Testing Facility (CBTF)

**Other AE3 Activities:**
- Distinguished Lectures
- Lightning Symposium
- NSF CAREER Workshops
- Third-Year Review Seminar/Discussions
- Celebration of Teaching

[ae3.engineering.illinois.edu](http://ae3.engineering.illinois.edu)
Collins Scholars
Since 1998, first-year faculty members in the College of Engineering have participated in a program designed to help them get their careers at Illinois off to a successful start. These participants are designated as Collins Scholars (named after W. Leighton Collins, an alumnus who served as executive director of ASEE for many years).

Collins Scholars activities include an August kick-off event, weekly lunch seminars, sessions on creating and reviewing feedback, classroom observations, and Excellent Teacher visits. They also participate in social events and NSF CAREER workshops.

Strategic Instructional Innovations Program
Strategic Instructional Innovations Program (SIIP) is an effort to establish communities of practice to increase the impact of our educational initiatives. These communities of practice are intended to enable faculty to advance excellence in teaching methods and technologies through an engineering approach to innovation centered around prototyping, evidence-based decision making, learning from failures, and iteration.

Participants

<table>
<thead>
<tr>
<th>SIIP teams 2017-18</th>
<th>tenure track faculty</th>
<th>teaching faculty</th>
<th>engineering students</th>
<th>staff</th>
<th>faculty from other colleges</th>
<th>graduate student from another college</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>35</td>
<td>18</td>
<td>8</td>
<td>4</td>
<td>8</td>
<td>2</td>
</tr>
</tbody>
</table>

Funding
Thirteen teams received funding; the others participated through no-cost extensions or without funding.

$288,059 Total Funding
$8,870 - $40,000 Range

Publications
49 Forty-nine publications and conference papers resulted from SIIP projects this year

Teaching Professionals Program
The Teaching Professionals Program (TPro2) works to build community and formalize the career objectives of the participants by hosting monthly meetings that provide professional development, facilitate sharing of ideas, and allow general discussion. All specialized teaching faculty (approximately 75 in the College) are invited.

Faculty Coordinators
Lawrence Angrave Computer Science
Mariana Silva Computer Science
Yuting Wu Chen Electrical & Computer Engineering
Education Innovation Fellows

Education Innovation Fellows (EIFs) are selected annually to participate in a college-wide community of practice focused on fostering and re-defining excellence and innovation in engineering education at Illinois. Based in the Academy for Excellence in Engineering Education (AE3), this community of practice supports EIFs individual activities in engineering education, provides structured opportunities for leadership, and brings visibility to their collective efforts.

**EIFs for 2017-2018**

Jennifer Amos  Bioengineering  
Brian Bailey  Computer Science  
Tim Bretl  Aerospace Engineering  
Jeff Erickson  Computer Science  
Elif Ertekin  Mechanical Science & Engineering  
Jonathan Makela  Electrical & Computer Engineering (Fall 2017)  
Jeffrey Roesler  Civil & Environmental Engineering  
Matthew West  Mechanical Science & Engineering (Faculty Coordinator for Education Innovation)

**AE3 Council 2017-2018**

AE3 Council Members are committed to instructional innovation in the College of Engineering, and actively support the efforts of AE3.

Jennifer Amos  Bioengineering  
Brian Bailey  Computer Science  
Rohit Bhargava  Bioengineering  
Tim Bretl  Aerospace Engineering  
Jeff Erickson  Computer Science  
Elif Ertekin  Mechanical Science & Engineering  
Jose Mestre  Physics & Educational Psychology  
Luke Olson  Computer Science  
Marcia Pool  Bioengineering  
Jeffrey Roesler  Civil & Environmental Engineering  
Chris Schmitz  Electrical & Computer Engineering  
Tim Stelzer  Physics  
Dallas Trinkle  Materials Science & Engineering  
Matthew West  Mechanical Science & Engineering  
Craig Zilles  Computer Science

Student Consultants on Teaching

The Student Consultants on Teaching (SCOT) program recruits and trains both undergraduate and graduate students within engineering to assist AE3 with classroom observations, focus groups, and SIIP grants. Students work alongside AE3 staff, or experienced engineering faculty, to improve the college teaching and learning environment. The student perspective is extremely valuable when combined with faculty and AE3 staff viewpoints.

**Student Panels for New Faculty**

- 6 # of SCOTs 2017-2018
- 3 Departments represented
- 7 Classroom observations
- 2 Student panels for new faculty
- 4 Undergraduate participants
- 2 Graduate participants

**Computer-Based Testing Facility**

The Computer-Based Testing Facility (CBTF) has grown rapidly in the four years since it started. In Fall 2017, the CBTF served 21 courses from seven different departments and over 6,000 unique students. Over 52,000 exams were proctored, including 3,500 final exams.

The CBTF started from a SIIP project by Matt West (MechSE) and Craig Zilles (CS) in 2014. This year, proctor hiring and the day-to-day CBTF operations came under AE3 supervision. A new CBTF Coordinator/Specialist position was opened to manage 35 proctors who were hired to cover exams 12 hours a day, 7 days a week.
**Illinois Engineering First-Year Experience**

The Illinois Engineering First-Year Experience (IEFX) is an interdisciplinary program designed to enhance the learning experience of every first-year student in Engineering at Illinois. Our goal is to support students’ aspirations by building community and laying a solid foundation for their collegiate career.

**IEFX Launch**

All incoming freshmen were invited to attend this welcome event held on August 26, 2017 at the Krannert Center for the Performing Arts.

**IEFX: Summer Scholars**

The Summer Scholars program helps incoming Engineering freshman get a head start on their collegiate career. Summer Scholars take two Summer II courses before freshman year: a required course and an engineering-oriented IEFX course. Key components of the program are community building and mentoring (by upperclassmen in Engineering students).

**IEFX Electives**

IEFX offered a variety of freshman elective courses for the Fall 2017 semester. These courses are designed to expose students to interdisciplinary and real-world engineering experiences early on in their academic careers.

```
IEFX Courses | # Students
-------------|---------
Grand Challenges | 14
Projects 1 | 49
Projects 2 | 46
Intro to Research | 20
Inspiring Interacting Informing: The Secret Weapons of an Engineering | 11
Renaissance Engineer: Connecting Art, Science, and History | 17
Introduction to Sustainability | 12
Personal Mobility Innovations (with POETS) | 19
Strategies for International Development | 6
Guatemala Service Learning | 9
Total Students | 201
```

**Other AE3 Activities**

**Distinguished Lectures**

*October 2017* | Prof. Mark McDaniel (Washington University, St. Louis), “Making learning stick: Evidence-based techniques to improve instruction and learning.”

*March 2018* | Prof. Cindy Finelli (University of Michigan), “Overcoming barriers to using student-centered instruction: From research to practice.”

**Lightning Symposium**

*November 2017* | AE3 held the second Lightning Symposium on Teaching: Ideas that Work. Ten faculty members presented two-minute overviews of creative approaches to teaching.

**NSF CAREER Workshops**

In collaboration with the College of Engineering Office of Research, AE3 offered three sessions for faculty applying for NSF CAREER Awards.

**Third-Year Review Discussion**

Prof. Rohit Bhargava (BioE) led a session for previous Collins Scholars who have just completed their 3rd-year review process. Ten faculty attended the session.

**Celebration of Teaching**

Every April, AE3 congratulates the Collins Scholars program participants, and showcases SiIP and other instructional innovations in the College of Engineering.