

***Undergraduate Program  
Report to  
ECE Advisory Board  
Summer 2019***

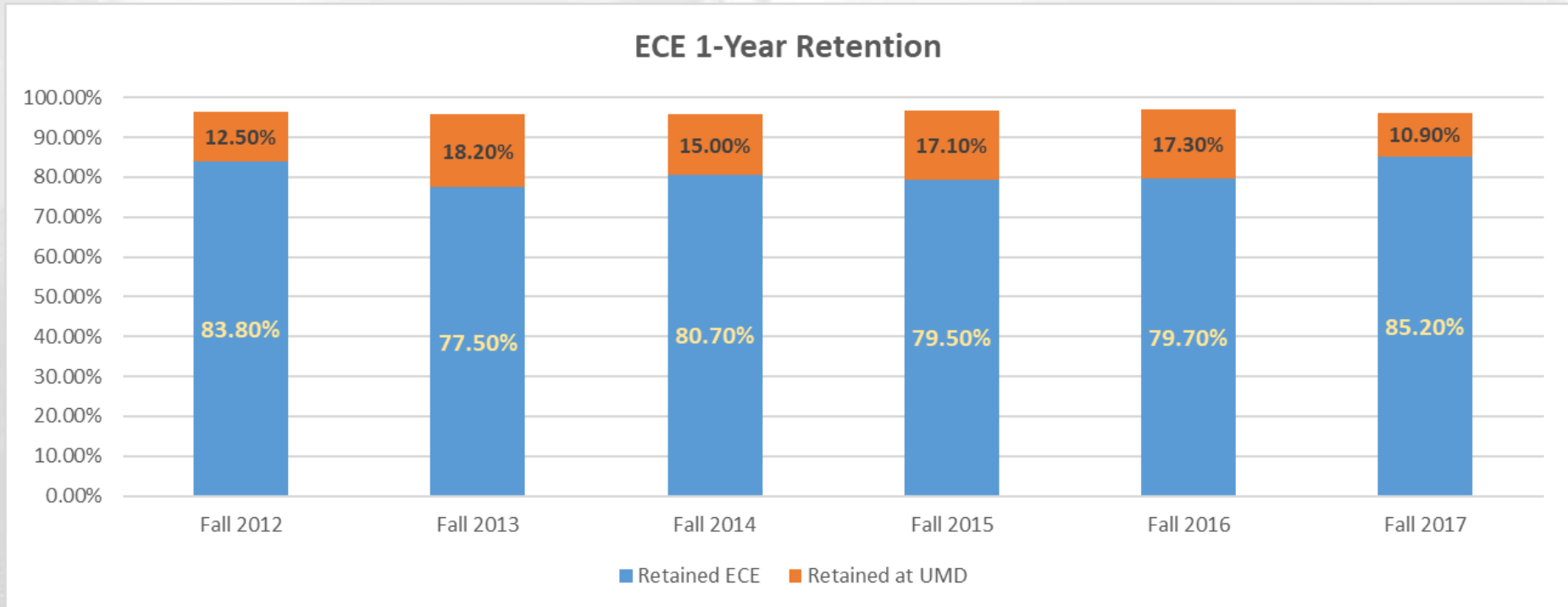
***Neruh Ramirez  
Director, ECE Undergraduate Studies***

# TODAY'S PRESENTATION

- ECE Retention, Graduation, and Admissions Update
- Embedded Systems & IoT at Shady Grove Update
- Program Updates for Fall 2019:
  - Academy of Machine Learning (Citation Program)
  - New Computer Engineering Program
- TI Peer Mentor Program Update
- Fall 2019 Freshman Welcome

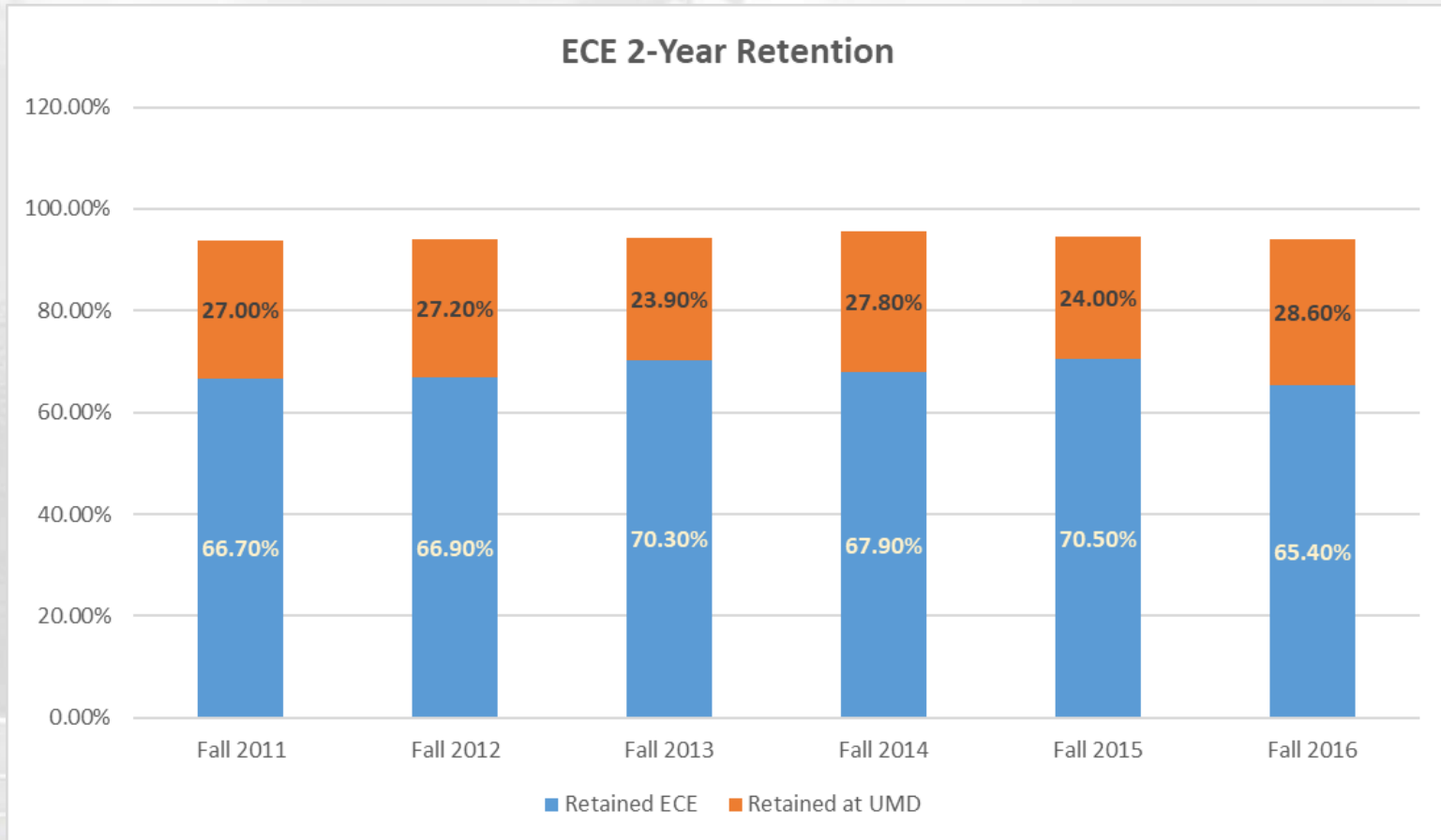
# ECE FRESHMAN RETENTION

- 1-Year Retention: Pct. of students retained in ECE (blue) and pct. of students retained at the University (orange).



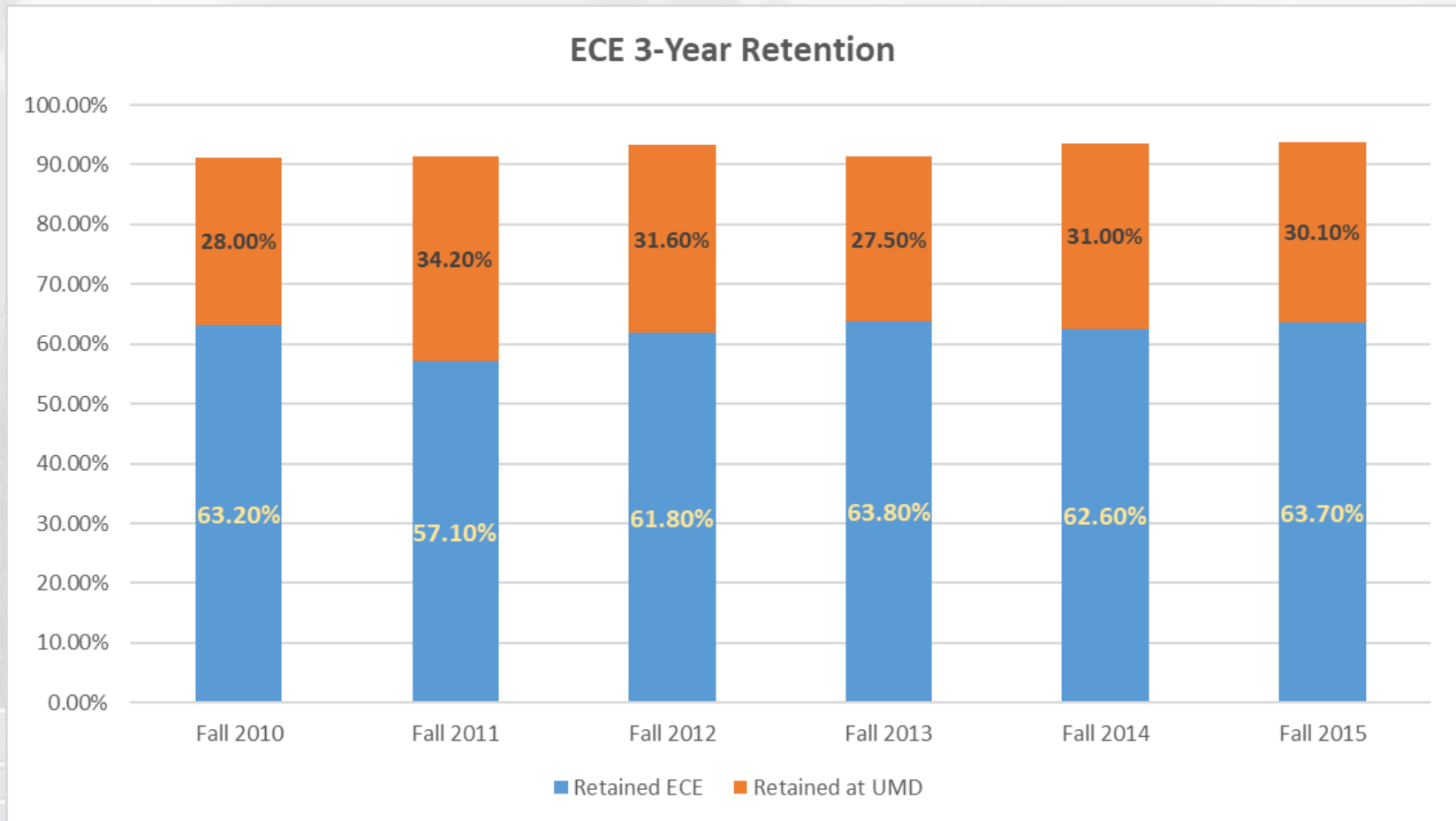
# ECE FRESHMAN RETENTION

- 2-Year Retention: Pct. of students retained in ECE (blue) and pct. of students retained at the University (orange).



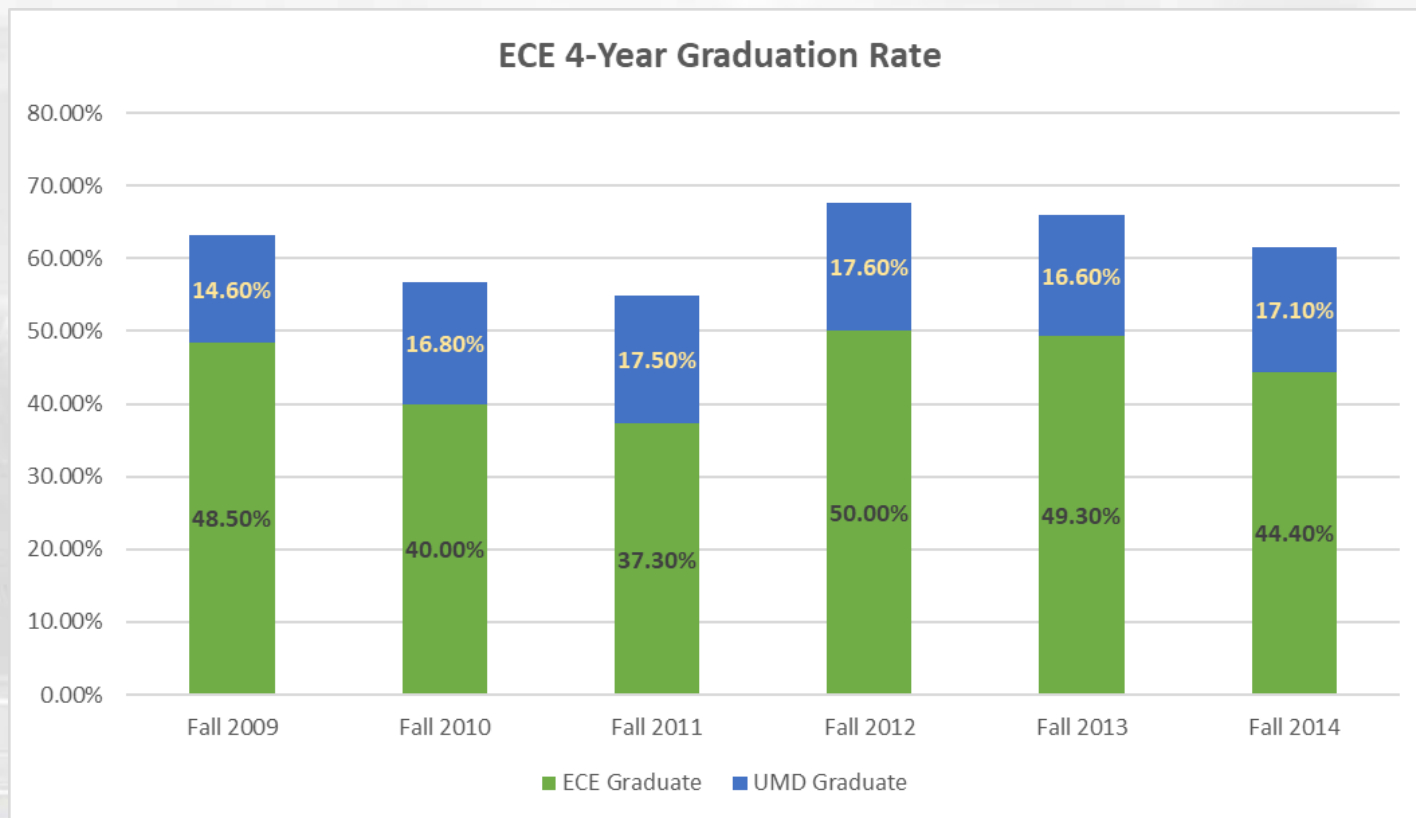
# ECE FRESHMAN RETENTION

- 3-Year Retention: Pct. of students retained in ECE (blue) and pct. of students retained at the University (orange).



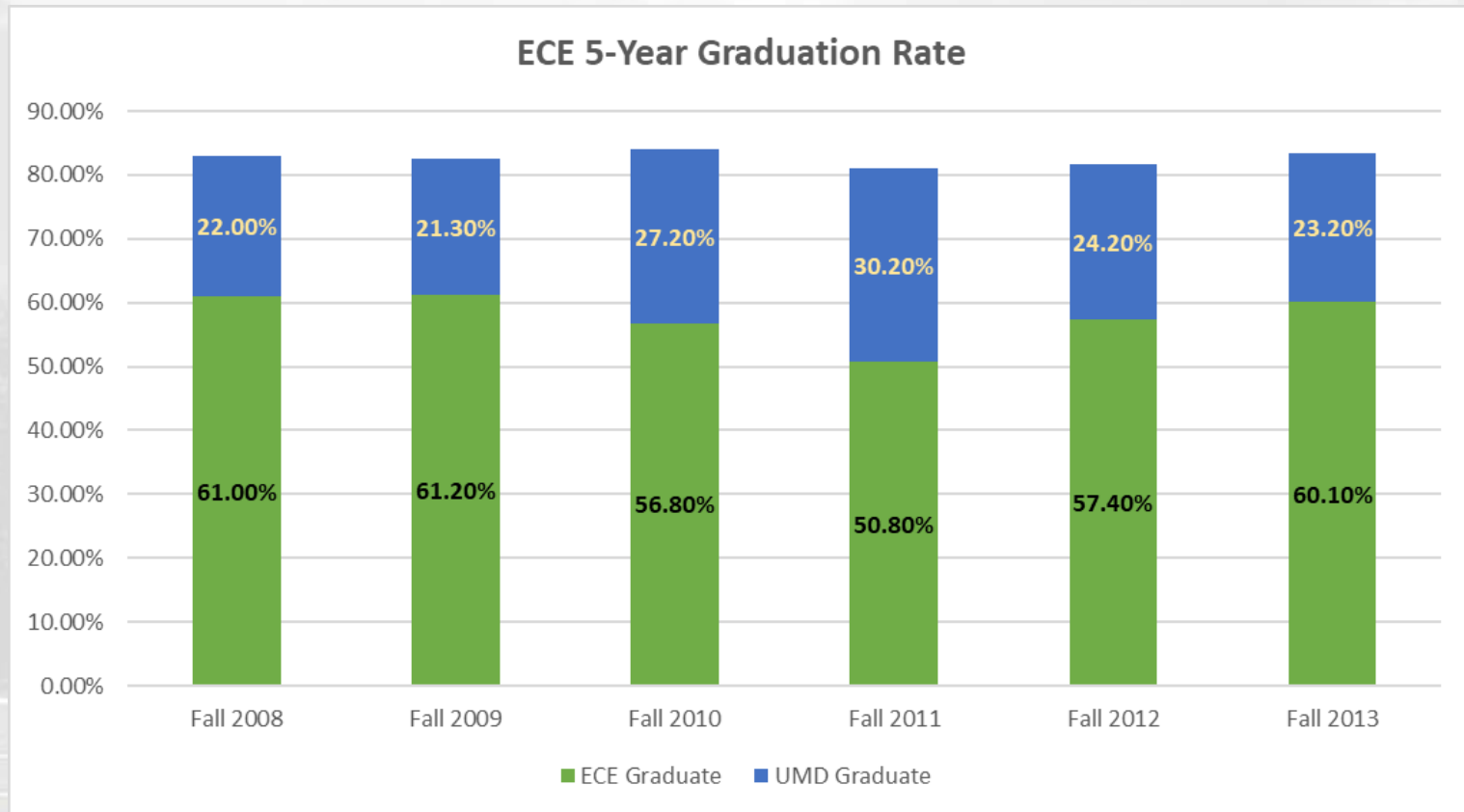
# ECE FRESHMAN GRADUATION RATE

- 4-Year Graduation rate: Pct. of students who earned an ECE degree (green) and pct. of students who earned a UMD degree (blue).



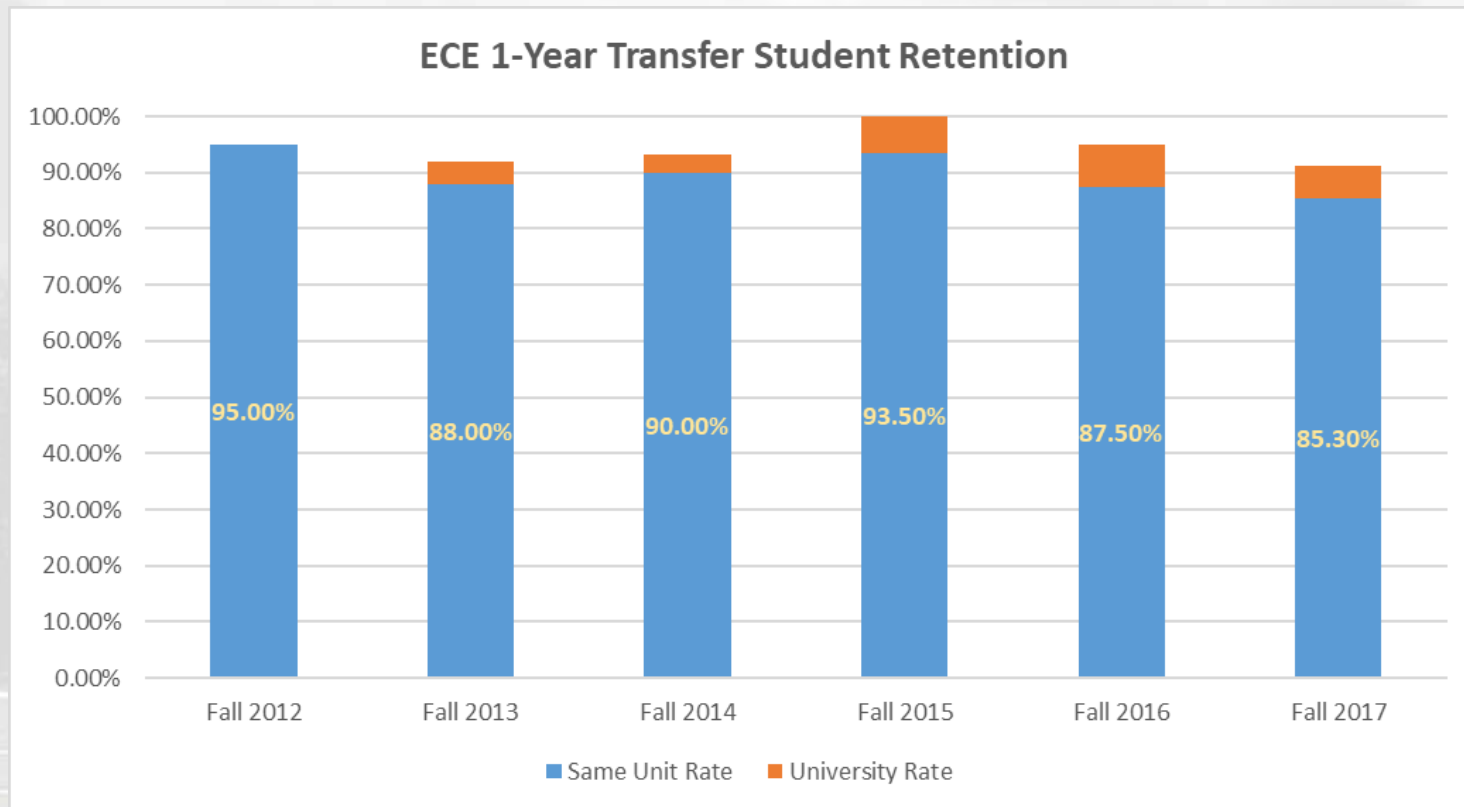
# ECE FRESHMAN GRADUATION RATE

- 5-Year Graduation rate: Pct. of students who earned an ECE degree (green) and pct. of students who earned a UMD degree (blue).



# ECE TRANSFER RETENTION

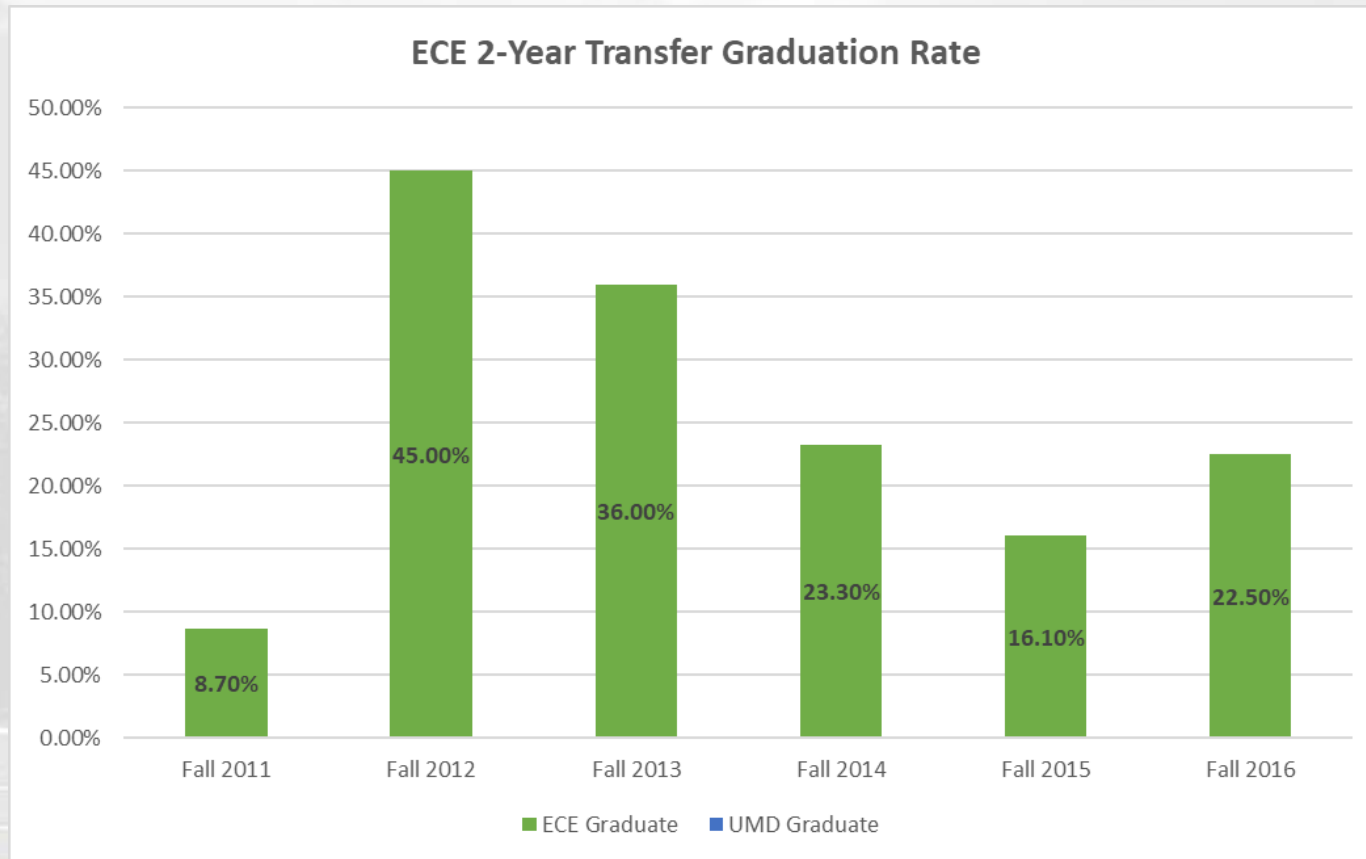
- 1-Year Transfer Retention: Pct. of transfer students retained in ECE (blue) and pct. of transfer students retained at the University (orange).





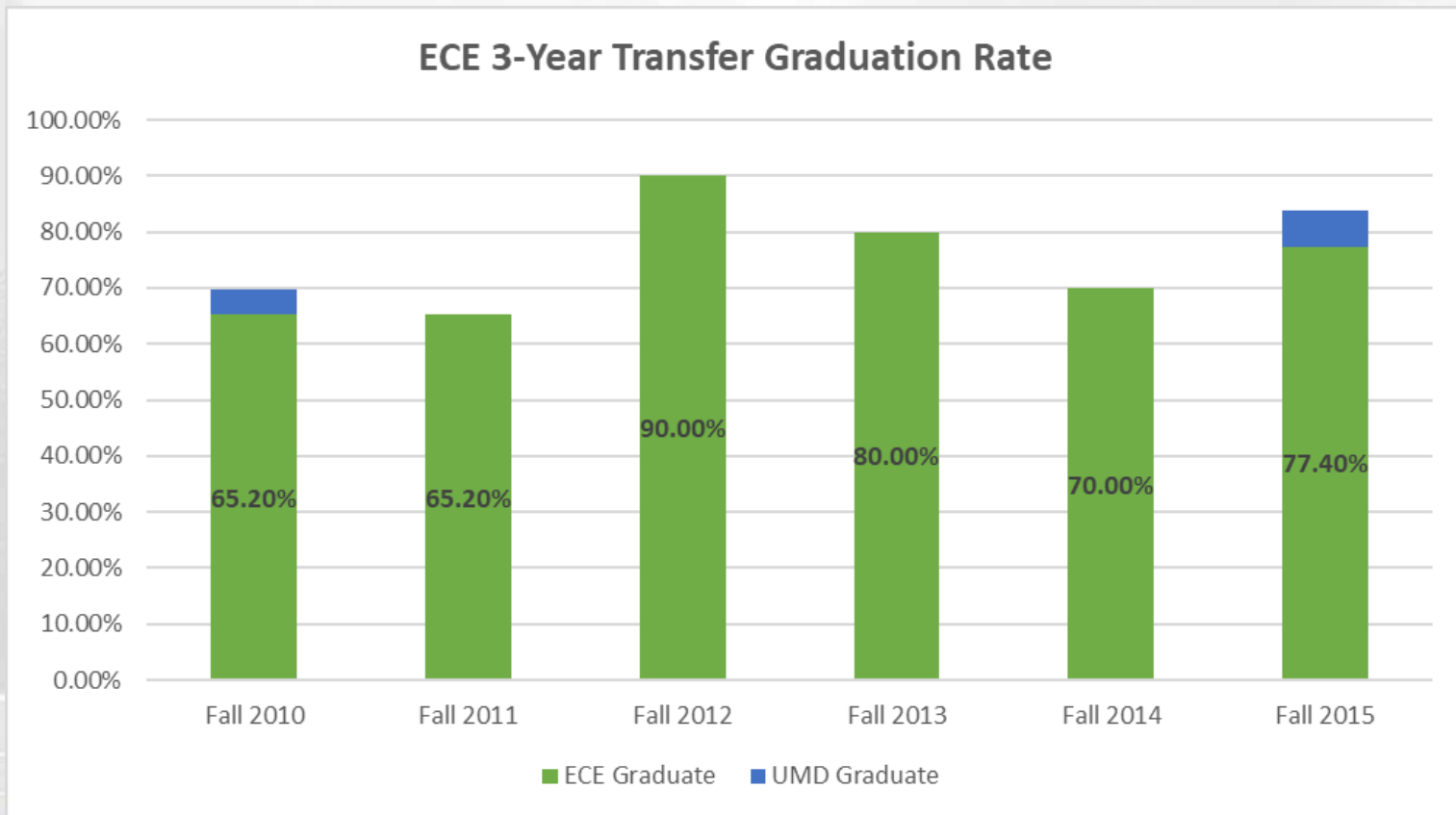
# ECE TRANSFER GRADUATION RATE

- 2-Year Graduation rate: Pct. of transfer students who earned an ECE degree (green) and pct. of transfer students who earned a UMD degree (blue).



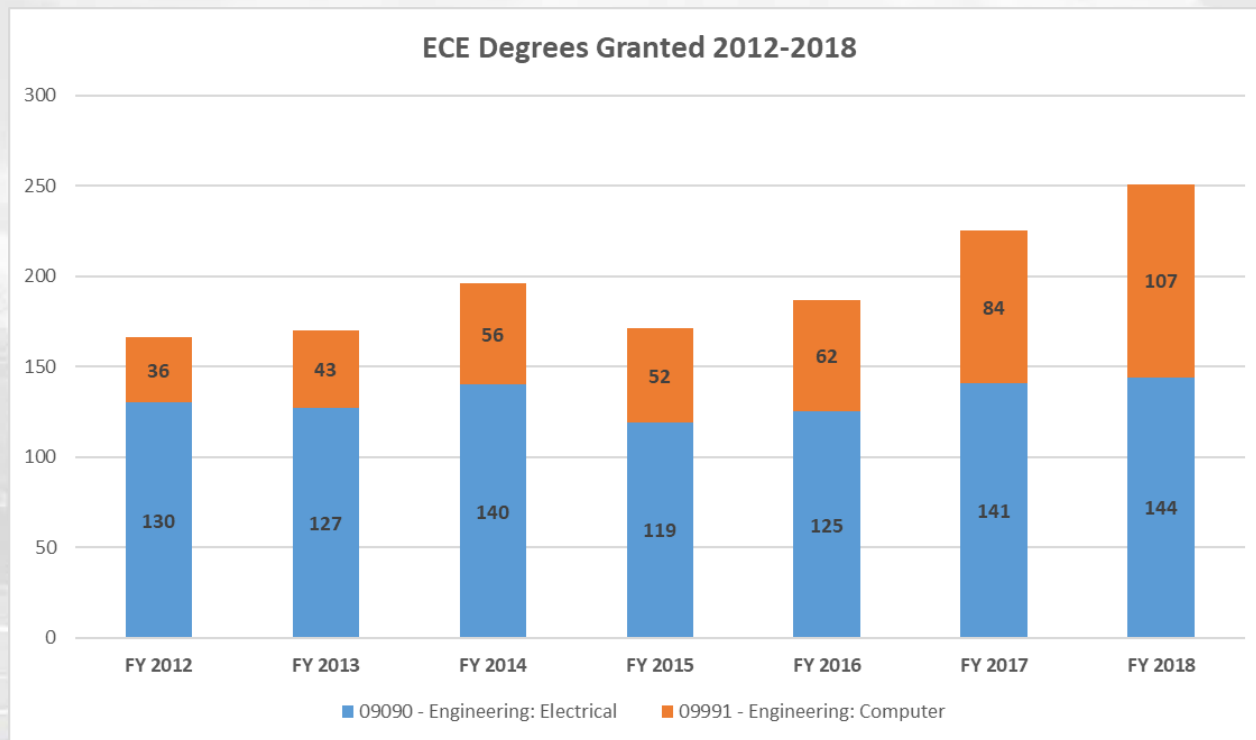
# ECE TRANSFER GRADUATION RATE

- 3-Year Graduation rate: Pct. of transfer students who earned an ECE degree (green) and pct. of transfer students who earned a UMD degree (blue).



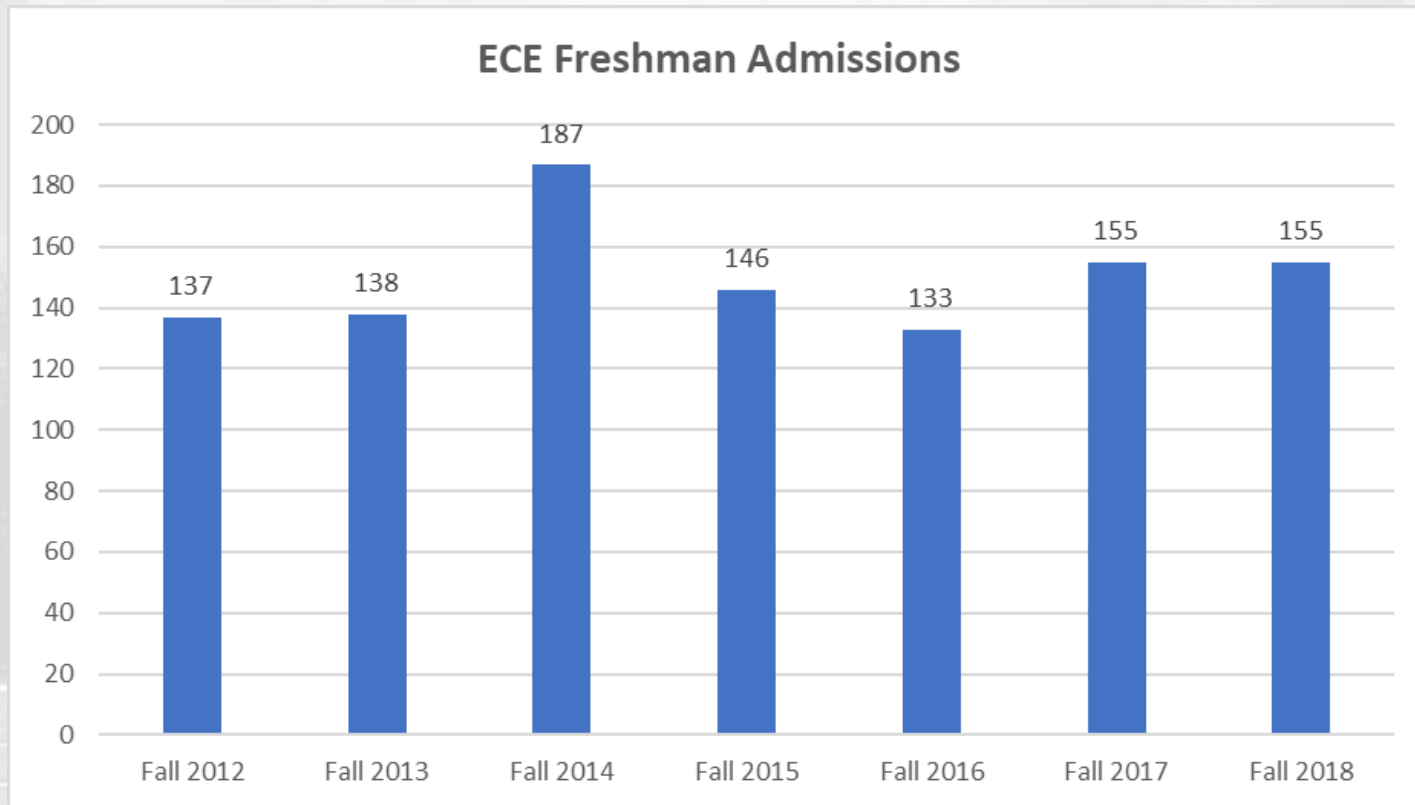
# ECE DEGREES GRANTED

- Last December 2018 we awarded 78 bachelor degrees.
- For Spring 2019 – 171 ECE students applied for graduation:
  - 108 Electrical Engineering
  - 63 Computer Engineering



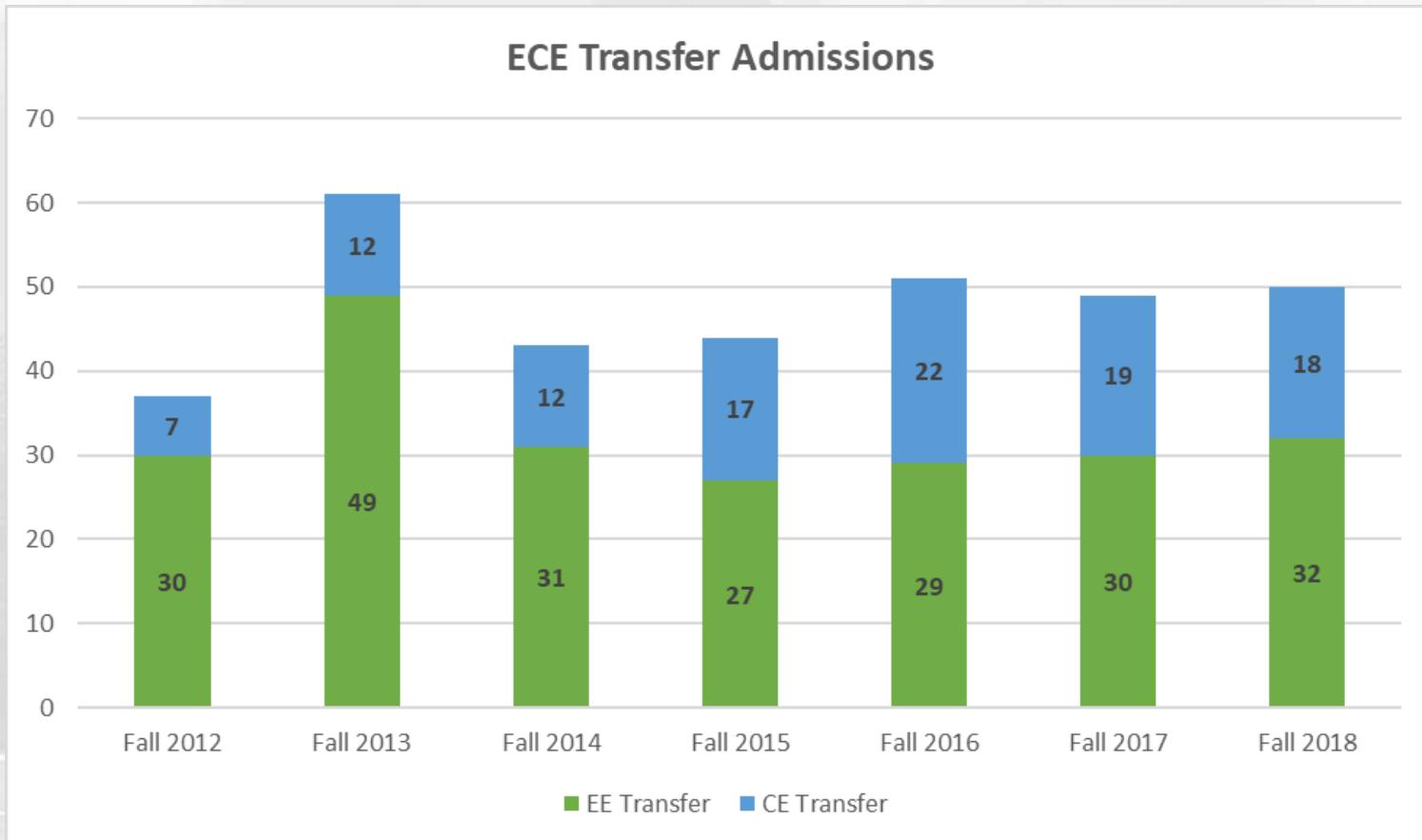
# ECE FRESHMEN ADMISSIONS

- Fall 2019: 110 ECE freshmen confirmed (67 CE; 43 EE)
- ENGR: Overall numbers of confirmed freshmen down:
  - May 2018: 860 confirmed freshmen
  - May 2019: 656 confirmed freshmen

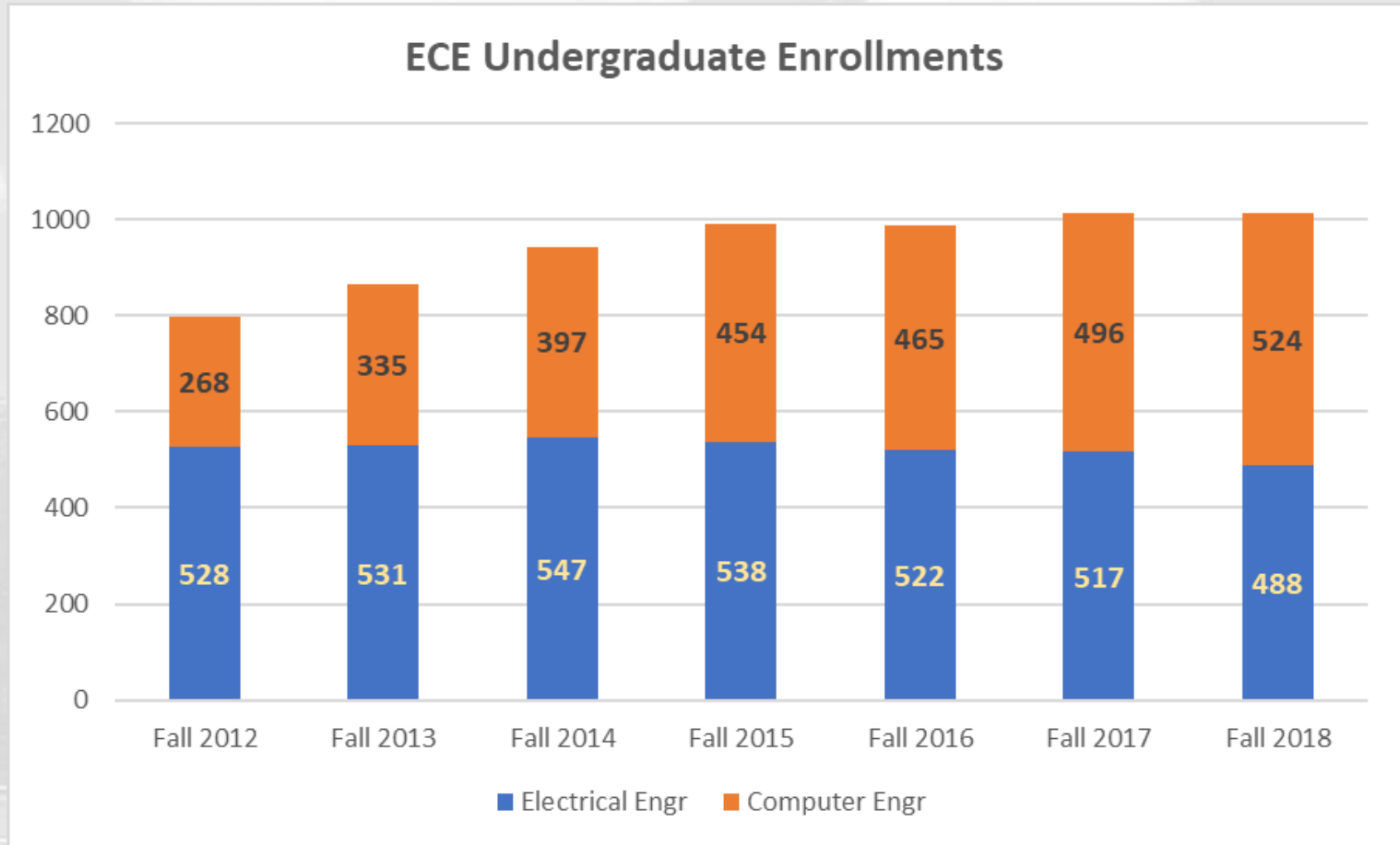


# ECE TRANSFER ADMISSIONS

- Data shows Fall admissions only (majority of transfer admits)
- Spring admissions typically has 15-20 incoming transfer students

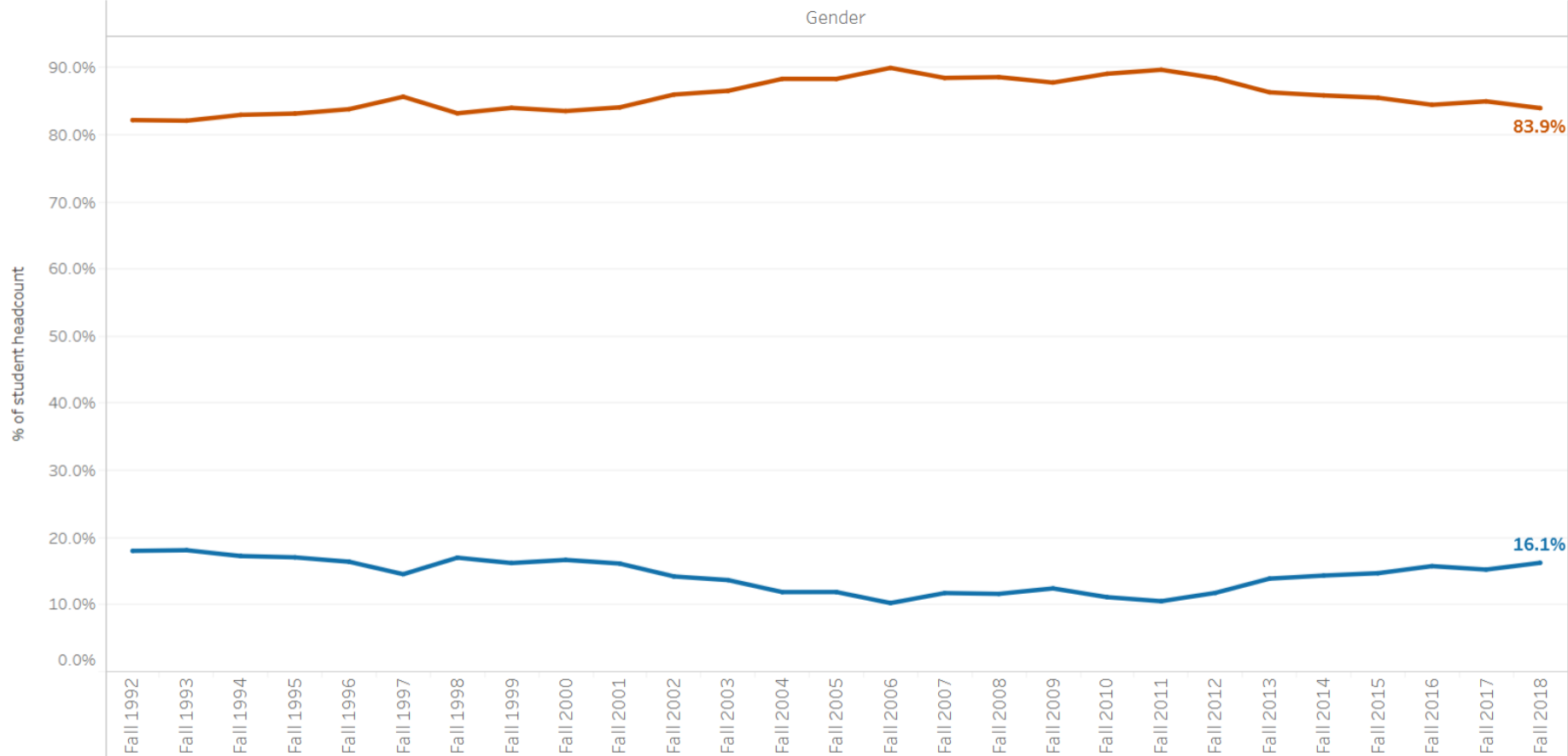


# ECE UNDERGRADUATE ENROLLMENTS



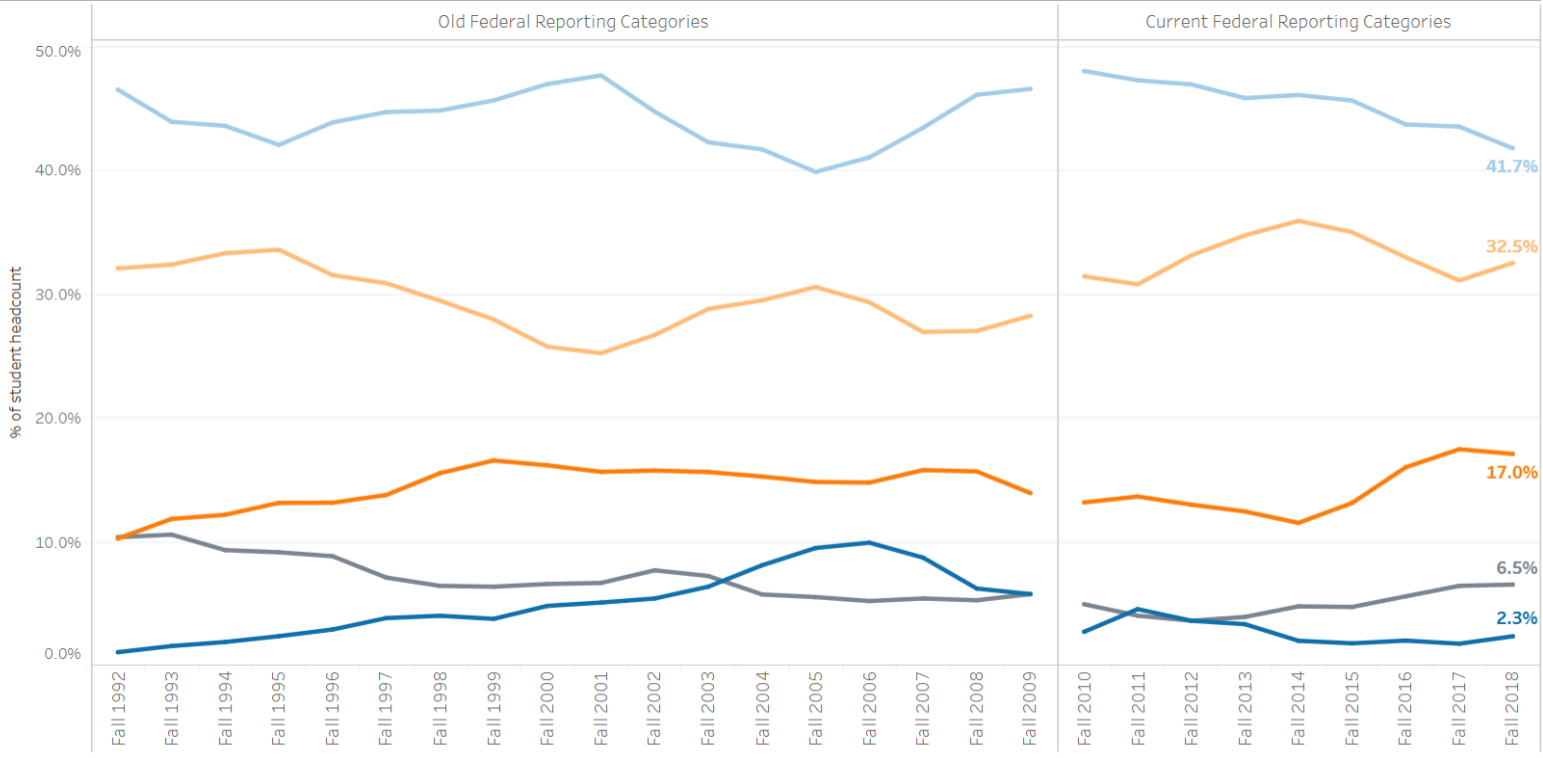
# ECE UG BY GENDER

College: A. James Clark School of Engineering  
Department(s): ENGR-Electrical & Computer Engineering  
Major(s): All



# ECE UG BY RACE

College: A. James Clark School of Engineering  
 Department(s): ENGR-Electrical & Computer Engineering  
 Major(s): All

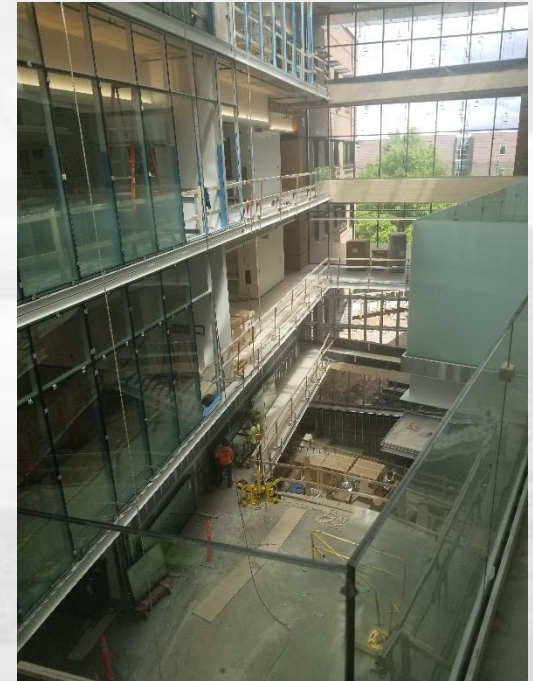




# EMBEDDED SYSTEMS UPDATE



# EMBEDDED SYSTEMS UPDATE



# EMBEDDED SYSTEMS UPDATE

- Biomedical Engineering Science building scheduled to be completed in Summer 2019
- ECE Faculty working this summer to develop courses for ES program
- Priority for AY 2019-2020 – Student recruitment:
  - Target schools: Montgomery College, Howard CC, and Frederick CC
  - ECE will meet with Montgomery College to establish an articulation agreement in late summer 2019
- Positive feedback about Embedded Systems program at School of Engineering community college meeting

# EMBEDDED SYSTEMS UPDATE

- Recruitment Events – Fall 2019
  - Montgomery College Transfer Fairs – Sept. 23, 24, 25
  - Frederick Community College Fair – October 3
  - Howard Community College Fair – October 23
  - Universities at Shady Grove Open House – late October
  - Individual community college visits – throughout fall semester



# ES&IoT ADMISSIONS

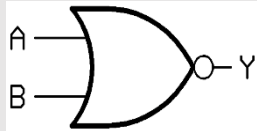
- Engineering LEP Admissions requirements
  - Calculus II and Physics I with a “B-”
  - Chemistry for Engineers with a “C-”
  - Cumulative GPA of a 3.0
- Additional requirements:
  - ENES100 Intro to Engineering Design
  - PHYS260/261 Physics II
  - MATH2xx Requirement (MATH246, MATH241, OR MATH240)
  - Programming Course Requirement
  - All lower-level General Education courses
  - At least 60 transfer credits

# ES&IoT CURRICULUM

## Junior Year - Fall Semester



Analog  
Electronics  
ENEB302



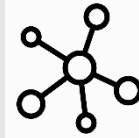
Digital  
Circuits  
ENEB344



Discrete  
Math  
ENEB354

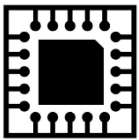


Intermediate  
Programming  
ENEB340

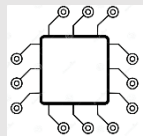


Intro. to  
IoT  
ENEB341

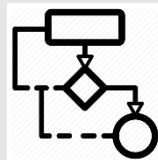
## Junior Year - Spring Semester



Micro-  
electronics  
and Sensors  
ENEB304



Computer  
Organization  
ENEB353



Algorithms  
in Python  
ENEB355




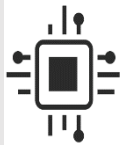
Networks &  
Protocols  
ENEB352





Technical  
Writing  
ENGL393

# ES&IoT CURRICULUM

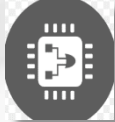

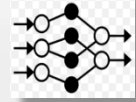




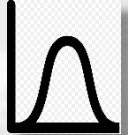
## Senior Year - Fall Semester

	
Capstone Design Experience I ENE408	Embedded Systems ENE454

## Senior Year - Spring Semester

	
Capstone Design Experience II ENE408	Security for Embedded Systems ENE443

## Senior Elective Courses

			
Advanced FPGA System Design ENE455	Operating Systems for Embedded Systems ENE444	Machine Learning Tools ENE456	Network Security ENE451
			
Adv Software for Connected Systems ENE452	Web Based Application Development ENE453	Database Development ENE457	Probability & Statistics ENE345

Tracks: Hardware, Computational, and Security (student picks one).

# ACADEMY OF MACHINE LEARNING

- Citation program approved by the University (April 2019)
- Open to ECE and other Engineering students
- Admissions application process will be handled by ECE UGO
- Program to be advertised through information sessions throughout AY 2019-2020
- Upon successful completion of coursework, students will receive a citation on their transcripts



# COMPUTER ENGINEERING UPDATE

- New Computer Engineering (CE) curriculum approved by University in Spring 2019
- Applicable to all new CE students in Fall 2019; current CE students will have the option of switching to new program
- New program highlights:
  - Provide flexibility within required junior courses:
    - ENEE303 Analog/Digital Electronics OR ENEE322 Signals & Systems Theory
    - ENEE324 Engr Probability OR STAT400 Applied Probability & Statistics I
  - Remove ENE307 Electronic Circuits Design Lab
  - Increase the number of required Senior Electives – require 6 credits of 400-level ENEE electives
  - Create a more flexible program with more senior level courses

# TI PEER MENTOR FELLOWS

- Peer Mentor program going into its 3<sup>rd</sup> year
- Participants in AY 2018-2019
  - 20 mentors (11 Electrical, 9 Computer)
  - 21 mentees (7 Electrical, 14 Computer)
- Will be hiring a leadership team (2-4 students) to help lead the mentors



# TI PEER MENTOR FELLOWS

- Results from 2018-2019 program survey:
  - Peer Mentoring Program has enhanced my experience in the ECE Department.
    - Mentor: Strongly Agree/Agree: 79%
    - Mentee: 62%
  - I would recommend the Peer Mentoring Program to others.
    - Mentor: Strongly Agree/Agree: 95%
    - Mentee: 70%
  - I am gaining a better sense of how to be successful and involved at UMD/ECE.
    - Mentor: Strongly Agree/Agree: 74%
    - Mentee: 77%
- Survey comment:

*I liked the knowledge I was able to gain and the insight that being connected to a upperclassmen, someone in my specific major who had been in many of the situations I have been in and who could give great advice.*

# 2019 ECE FRESHMAN WELCOME

- New ECE Freshmen Welcome will be held on Saturday, August 24, 2019

