Computer Science, Computer Game Design, Technology and Information Management

Summer Orientation 2014
Presentation Overview

- Introductions
- Overview of Computer Science, Computer Game Design, and Technology and Information Management Majors
- Major Requirements and Qualifications
- Academic Advising & Support
- Getting Started: What to Take in Fall 2014
- What’s Next
- Questions & Answers
Introductions: BSOE Undergraduate Advising and Student Affairs Staff

Charlie McDowell

Lydia Zendejas & Young Kim

Andrea Legg & Monique Vairo

Adrienne Harrell
Start Making Connections Now!

Turn to the person next to you

- Name
- Where you’re from
- Your college
- Your favorite video game or movie
- Plans for the rest of summer
All BSOE Undergraduate Majors and Programs

Applied Math & Statistics (2 minors)
Bioengineering (BS)
Bioinformatics (BS, BS/MS, minor)
Computer Engineering (BS, BS/MS, minor)
Computer Game Design (BS)
Computer Science (BA, BS, minor)
Electrical Engineering (BS, minor)
Network and Digital Technology (BA)
Robotics Engineering (BS)
Technology and Information Management (BS, minor)
Engineering & Computing Cluster
Overview of Computer Science, Computer Game Design, and Technology and Information Management Majors

- majors
- CS vs CE vs TIM
- career paths
- research and internships
- getting started
Computer Science Majors

- More or less same LD requirements
- CS/BS
  - 12 UD courses (4 electives, 8 required)
    - physics or chemistry
- CS/BA
  - 8 UD courses
    - 1 required, 3 from core cs, 2 cs electives, 2 tech electives
- CS:GD/BS
  - 12 UD courses
    - 2 required, 5 CS/CE, 2 Digital Media, 3 senior design
    - 3 Art and Social foundation LD electives
- CE 15 UD courses
CS vs CE vs EE vs TIM

- **CS** – mostly about software and algorithms
- **CE** – a mix but more about the hardware
- **EE** – all about the hardware
- **TIM** – more about the business
CS is collaborative!

Meeting of a project team at Google
CS is creative!

- CS is NOT just code
- Code is technical, but it’s also creative!

Introducing Leah Buechley

**Before College:** Interested in art and design, liked math.

**In College:** Studied fine arts, then computer science.

**Now:** Creates clothes that light up.
The Human Genome Project and the field of bioinformatics have revolutionized what is possible in forensics, health care, science, criminal justice and other fields through the creation of the DNA database.

genome.ucsc.edu
Student Interests + CS = Innovative Careers!

*Find out what you love to do and do that. It’s that simple.*

~ Dr. A. L. Garcia
CS Careers

- Software developer
  - Tessa – Google
- Web apps
- Mobile apps
- Enterprise systems
- Embedded systems
- Entertainment
- Health care
- Assistive technology
- Banking
- Retail
- ...

...
Science + CS = Something for everyone

- Bioinformatics
- Computational biology
- Genome informatics
- Cheminformatics

Pictured above: Human chromosomes on a black background, from the National Human Genome Research Institute
Humanities/Social Science + CS =

- Motion graphic design
- Animation (2D & 3D)
- Computer graphics
- Computational linguistics
- Speech recognition software
- Human computer interaction

Pictured above: Digital art collage created by students at the Texas School for the Deaf in Austin, TX

Photo: Texas School for the Deaf
Education + CS =

- Educational technology
- Instructional design
- Assistive technology
- Electronic learning/ e-learning/online learning
- Distance education
- Educational animation

Pictured above: Assistive speech generating devices for language learners and disabled learners

Photo: Spectronicsinoz
Business + CS =

- Management information systems (MIS)
- Computer information systems (CIS)
- Database administrator
- Network administrator
- IT Portfolio Management
Research and Internships

- Fall is the time to shop for summer internships
- Read the weekly newsletter
- Seek out faculty
- Go to career fairs and company “meet and greets”
Research and Internships

- Fall is the time to shop for summer internships
- Read the weekly newsletter
- Seek out faculty
- Go to career fairs and company “meet and greets” (Google, Microsoft, eBay, Adobe, HP, Cruzio, and many lesser know names)
- [http://cs.soe.ucsc.edu/research](http://cs.soe.ucsc.edu/research)
The Technology and Information Management Major (TIM) focuses on the Management of Technology and the Technology of Management. The TIM major produces engineers who are prepared to meet the challenges of a 21st century service-based economy propelled by information and customers.
The TIM undergraduate engineering degree program trains students to:

- Use data/information to analyze and improve all aspects of a business (e.g. customer service, product development, marketing and advertising, supply chain)

- Design and develop the information technology architecture (network layer to software layer) to address all aspects of managing a business (e.g., resources, product development, marketing)

- Design, develop, and manage new technologies, products, and services, in large, medium, and small high-tech enterprises

- Provide real-world experience in the form of course-projects and Internships
The TIM program should be compelling to students with interests/aptitudes in three areas

- **Mathematics (M)**
  - Calculus, discrete math, probability and statistics, linear algebra, differential equations

- **Information Technology (IT) and engineering**
  - Programming, computer architecture, computer networks, data-base technology

- **Economics (E) and business**
  - Microeconomics, macroeconomics, accounting

These areas constitute the MIE foundation (or base) for TIM
This program prepares its students for a wide variety of entry-level engineering and management positions in the High-Tech sector.

- Information Technology (Intel, Seagate, Cisco, Apple, Google, Xantrion)
  - Information systems/technology engineer
  - Business systems developer
  - Enterprise software developer
  - Data Engineer/Scientist

- Management of Technology (Intel, Seagate, Cisco, Apple, small start-ups)
  - Business analyst
  - Product development engineer/manager
  - Supply Chain manager/analyst
  - Project Manager

(as well as Graduate studies in Engineering and Business)
eventually leading to executive positions

- Chief Information Officer (CIO)
- Chief Technical Officer (CTO)
- Chief Operations Officer (COO)
- Chief Executive Officer (CEO)

(as well as academic positions in leading universities)
TIM students actively engage in internships in major Silicon Valley companies like Seagate, Cisco, Plantronics, as well as medium and small companies.

Some Examples:

- Development and implementation of custom software application to automate Seagate’s customer purchase orders

- Development and implementation of software for demand forecasting, inventory management and production planning for Seagate’s disk drive product’s supply chain network

- Knowledge Engineering software development and implementation for Cisco’s Smart Products group

- Project Management for a wide variety of Cisco IOS software products
UCSC: Two Types of Academic Advising

- **Major/Department Advising** –
  - BSOE Peer Advisers—BSOE Peer Advisers are current Undergraduate students with training and skills to provide help with advising and schedule planning

  - Professional Staff Advisers—School of Engineering Advisors advise for all school of engineering majors. Major-specific requirements, declaration of major process, forms and helping students determine their qualification for school of engineering majors

  - Faculty Advising—course content, career and research opportunities, choosing electives in the major.

- **College Advising** –
  - College Advisers – general education, progress to degree, non-major related advising issues
BSOE Undergraduate Advising & Student Affairs Services

- 225 Baskin Engineering Building (West End of Building)
- Monday through Friday
  - Hours: 9 to 11:30 am and 1:30 to 4:00 pm (Drop-off/pick-up forms, etc.)
  - Express Advising: 1:30 to 4:00 pm (Peer and Staff Advisers available)
  - Advising Workshops: Consult Schedule
- Email: advising@soe.ucsc.edu
Important Undergraduate Advising Office Resources

- Peer Advisers
- Staff Advisers
- BSOE Undergraduate Advising website: ua.soe.ucsc.edu
- BSOE Undergraduate e-newsletter
- BSOE Advising Workshops
  - Major Qualifications
  - Major Declaration
  - General Academic Advising
What to take in the Fall

• Sign up for 3 Courses (Math+Major+College/GE course)

• 1. Math
  • In order to enroll into a Math course, must have completed Math placement, or have AP credit, or college level credit.

  • No Placement Exam yet? Exams completed during summer orientation will be posted by August 4th.

  • Specific course will depend on math placement exam score, AP, or college level credit. Students should focus on Calculus Math 19A/B (or Math 3) **Do not take the following Math series courses: Math 11A, AMS 11A or 15A, or Econ 11A**

• 2. Major course
  • Specific course will depend on major, and in some cases math preparation.

• 3. College Core course or a General Education (GE) course
Getting Started: Computer Science and Game Design

- **Fall**
  - Math
  - CS 10 or 5J or 12A/L
  - Core or GE
- **Winter**
  - Math
  - CS 5J or 12A/L or 11 or 12B/M
  - GE or Core
- **Spring**
  - Math
  - CS 11 or 12B/M or CE12 or CE16
  - GE (CS 80K for Game Design students)
### Plan One
- **Fall**
  - Math
  - Econ 10A
  - Core or GE
- **Winter**
  - Math
  - Econ 1
  - GE or Core
- **Spring**
  - Math
  - TIM 50
  - GE

### Plan Two
- **Fall**
  - Math
  - CMPS 5J or CMPS 10
  - Core or GE
- **Winter**
  - Math
  - CMPS 11 or CMPS 5J
  - GE or Core
- **Spring**
  - Math
  - Econ 1
  - GE

*These are just templates. There is a lot of variety and flexibility with TIM major plans. We recommend that you attend a major planning workshop in the fall for assistance with a plan.*
What’s Next?

Today:
- Questions and Answers
- Enroll in Fall Classes

Summer:
- Spend some time reviewing the BSOE website http://ua.soe.ucsc.edu
- Brush up on math skills
- Check out UCSC Career Center website and resources
- Regularly check (or redirect) your SlugMail!

Fall:
- BSOE Fall Orientation, Tuesday, September 30, 2014
  9:00am – 12:00pm, Media Theater/BSOE
  - Department/Major Break-out Sessions with Faculty
  - BSOE Fall Welcome Event~ Engineering Courtyard
Questions??