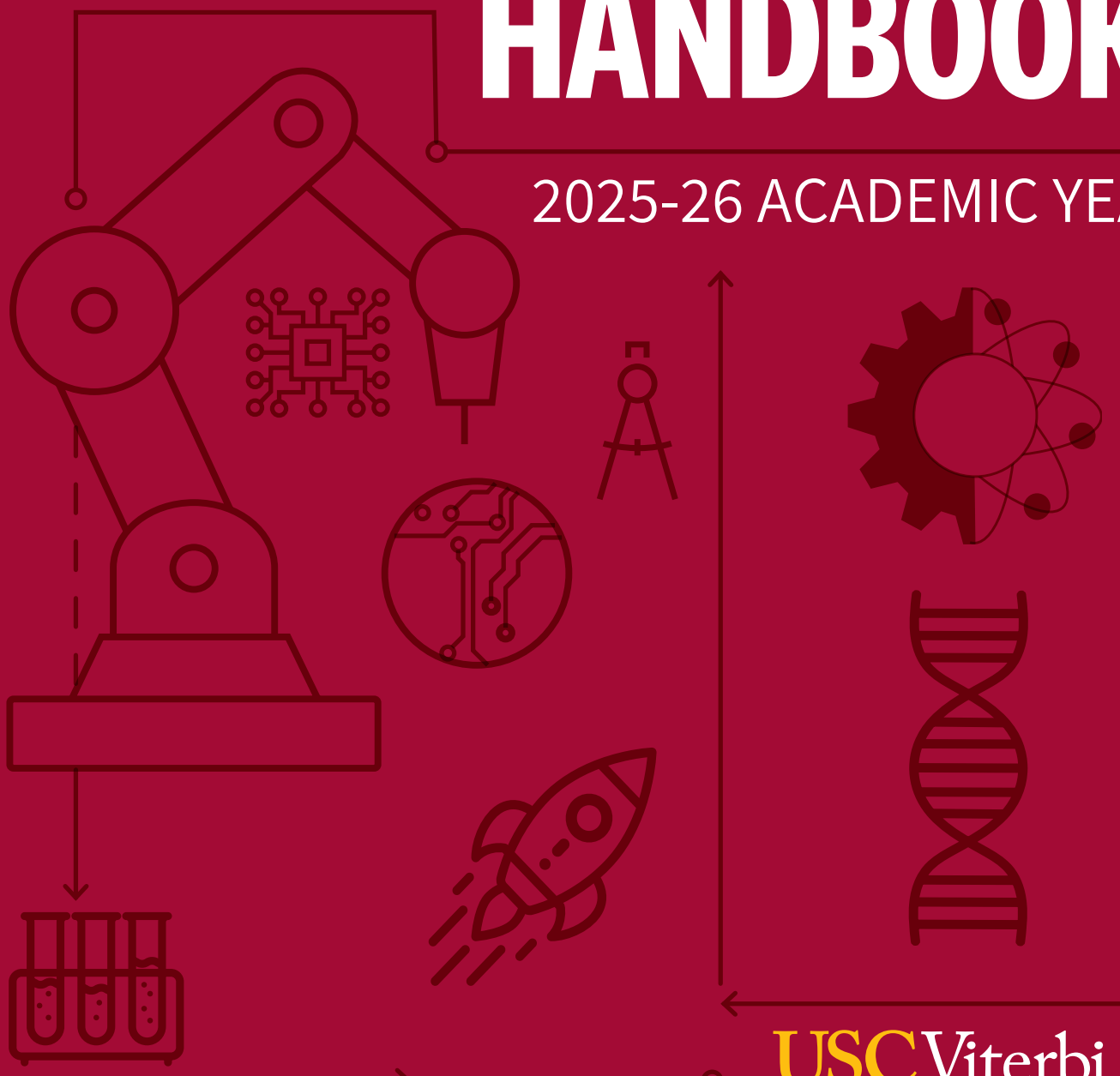
USC VITERBI SCHOOL OF ENGINEERING

UNDERGRADUATE HANDBOOK

2025-26 ACADEMIC YEAR



USC Viterbi
School of Engineering

A Community of Honor

Today, the world is relying more than ever before on engineering and technology's ability to solve the grand challenges of our time — namely, grand challenge problems in sustainability, health, security, and life enrichment, which are challenges that improve the human condition and the natural world. Additionally, due to the inherent complexity of our world, we know extraordinary advances in technology also have unintended consequences. Although engineers are crucial in shaping a world that addresses grand challenge problems, they also shoulder an even greater responsibility in addressing and preventing any unintended consequences.

Therefore, our times require that we educate trustworthy engineers — engineers who have not only exceptional technical competence but also exceptional character, the combination of which produces trust. Our graduates must be trustworthy engineers — sorely needed in today's times when our world is changing exponentially fast and when technology and humanity are intertwined as never before. This necessity determines our actions as an academic community at USC Viterbi as we strive to help engineer a better world for all humanity.

HONOR CODE

Engineering enables and empowers our ambitions and is integral to our identities. In the Viterbi community, accountability is reflected in all our endeavors.

Engineering+ Integrity

Engineering+ Responsibility

Engineering+ Community

Think good. Do better. Be great.

These are the pillars we stand upon as we address the challenges of society and enrich lives.

In this pursuit, "excellence in all our endeavors" becomes part of our vision and the combined excellence in competence and in character shapes our shared endeavors as students and faculty. It encompasses how we conduct ourselves in the classroom, in the lab, and outside the curriculum. As a vibrant cross-section of academic and social cultures, our school provides an ecosystem characterized by outstanding competence and character, high ethical standards, and adherence to human values. These principles govern our education, research, innovation, and impact.

In this endeavor, the Viterbi School aspires to always be a "Community of Trust" and a "Community of Honor", where the actions of one represent us all. With a lifelong commitment to excellence in all our endeavors, we aspire to outstanding competence and outstanding character and to be trustworthy in a world of constant change. As members of the Viterbi academic community, we hold ourselves up to the highest standard of academic integrity.

It is this vision that guides us.

Dean Yannis C. Yortsos

Your Viterbi Journey Starts Here

Welcome to the USC Viterbi Community!

I'm thrilled to welcome you and your family to USC Viterbi. You have every reason to be incredibly proud—your student has achieved a significant milestone in reaching this exciting new chapter.

As a current USC parent and the parent of two USC graduates, I truly understand the pride and expectations that come with sending your child off to college. Our students have worked hard to prepare for this moment, and now they join a vibrant, supportive, and challenging academic community.

At USC and the Viterbi School of Engineering, students will have access to a wide range of academic, professional, and extracurricular opportunities. I encourage them to explore these offerings, discover what inspires them, and create an experience that is uniquely their own.

Just as important as academic success is student well-being. We want them to thrive not only in the classroom, but also emotionally, socially, and physically. My hope is that each student feels empowered to be themselves, pursue their passions, and find purpose during their time here.

The Viterbi Admission and Student Engagement (VASE) office is here to be a constant source of guidance and support—a home away from home.

We're honored to be part of our students' journey, every step of the way.

Warm regards,
Kelly Goulis
Senior Associate Dean

ENGAGE SC

Engineer your unique student experience at Viterbi by actively participating in activities and experiences that help you discover, engage and build support networks in four key success areas: academic, career, social and wellness.

Learn more about ways to get connected, get involved and get support by downloading our university-wide engagement app, ***EngageSC*** *(https://engage.usc.edu/).*

Viterbi

WELLNESS & SUCCESS

Viterbi Student Services are designed to provide you with as many opportunities as possible for support, exploration and personal development both in and outside the classroom. We do not expect you to do it all by yourself. Viterbi is dedicated to creating a supportive, inclusive academic environment that ensures the well-being for all our students.

VITERBI OFFICE OF STUDENT WELLNESS

The Office of Student Wellness provides students with one-on-one assistance in navigating complex issues that many students face during their time at USC. Our goal is to empower students to seek help whenever they need it and assist in identifying and connecting students with relevant campus resources to address any challenges they may encounter in their academic journey.

Lorena Duran, LCSW, ED.D.
DIRECTOR OF STUDENT WELLNESS
LDURAN@USC.EDU

WHAT WE OFFER

- **Wellness Workshops**
- **Connection to Services**
- **Student Check-In's**

WELLNESS RESOURCES TO HELP YOU THRIVE

Student Counseling Services *are available 24 hours at 213-740-WELL (9355).*

Take care of your physical health through primary care services at ***Engemann and Eric Cohen Health Services.***

Mindful USC *offers a range of classes and workshops to the USC community. Download the Mindful USC app.*

Viterbi Well *is a student-led branch of Viterbi Student Wellness dedicated to providing programming that promotes well-being* ***viterbi.well@usc.edu***

The Office of Religious Life *sponsors a variety of opportunities for exploring the spiritual dimensions of your life and learning.*

Viterbi Student Aid Fund & USC Basic Needs *provides financial assistance to students experiencing food, housing or financial insecurity.*

Your FIRST YEAR EXPERIENCE

Whether you are coming from high school or a transfer institution, your first year at USC will be one of exploration and foundational building towards your overall success. The clubs, organizations and events on campus, both within and outside of Viterbi, are designed to facilitate that exploration. We encourage you to build community at USC and step outside your comfort zone by engaging in new personal and academic experiences. Everyone's experience will look different and will be unique for each student, so do not feel like you are not doing enough your first year.

Remember, your first year is just the start of your journey!

ORIENTATION & WELCOME WEEK

The **USC Welcome Experience** begins with orientation and continues through your first semester. Academic advisors will help you enroll in courses during orientation while peer orientation advisors will be available to offer guidance as you transition to college. You will also have the chance to attend welcome week events across campus where you will get to meet your fellow peers.

Mark your calendars for **Viterbi's New Student Welcome** on **Thursday, August 21st, 2025 at 11AM**!

TRISHA KHANDELWAL, *AEROSPACE ENGINEERING, Class of 2023*

Viterbi Involvement

- Lead Coach, Freshmen Academy
- President, Society of Women Engineers (SWE)
- USC Rocket Propulsion Laboratory (USCRPL)
- NAE Grand Scholar

USC Involvement

- Residential Assistant

" As a Freshman Academy coach, I have had the opportunity to mentor and help students navigate the challenges of their first year in college by providing guidance and support. I've seen the positive impact of mentoring on a student's academic success, personal development and overall college experience. "

YOUR ACADEMIC ADVISOR

Viterbi academic advisors are here to help you get the most of your academic experience and are dedicated to helping you define and accomplish your academic, co-curricular and professional goals here at USC. As the first point of contact, your major advisor will be there from orientation to graduation to assist you along your journey. They are your advocate and resource in helping you get connected across campus.

KEEMIA BEIZAI, *INDUSTRIAL & SYSTEMS ENGINEERING, Class of 2023*

Viterbi Involvement

- Lead Coach, Freshmen Academy
- 3D4E
- Women in Engineering (WIE)
- Viterbi Career Ambassador
- Institute of Industrial and Systems Engineers
- Virtual Peer Mentor, MAD Lab
- Lab Teaching Assistant for ISE375 - Facilities Design

" Mentoring first-semester engineering students is a rewarding feeling because we are able to make students feel like they have a community and a home here at USC during a challenging time in a new environment. My goal is always to help them feel like they are not alone and to find ways to grow and develop their interests despite the challenges of your first semester in college. "

FRESHMAN ACADEMY (ENGR 102)

All first-year students in Viterbi are invited to enroll in Freshman Academy, a two-credit class that encourages new Viterbi students to learn about different engineering fields, understand how engineers think and approach problem solving, and examine the ethical, societal and political impact of engineering. The course is supplemented with co-curricular activities, both in and outside the classroom, and will connect you with Academy coaches, peers, and guest lectures in the field!

STUDENTS LEARN FROM

- **coaches** — Upper-division engineering students who serve as mentors and resources for questions about Viterbi student life
- **faculty** — Experienced and enthusiastic professors who get to know students individually and provide insight on their research and careers
- **leaders in the field** — Professionals, innovators, researchers, and USC alumni in the engineering field who share their experiences just for Academy students

Viterbi COMMUNITY

The relationships you build at Viterbi are an important part of your undergraduate experience. This is your time for self-exploration, leadership development, service and interpersonal and professional growth. We encourage you to start creating a strong community and network of faculty, peers and staff who can help guide and support you throughout your undergraduate career.

VITERBI IMPACT PROGRAM

The Viterbi Impact Program is your gateway to service learning and volunteering. Viterbi students participate in a variety of one-time and semester-long opportunities. From rolling up your sleeves to help at a local tree planting project to inspiring the next generation of engineers through hands-on STEM activities and robotics competitions, Join Viterbi Impact and make a difference in the local Los Angeles Community!

PARTNERSHIPS

Friends and Neighbors Day with Viterbi
Friends & Neighbors Day is a Trojan Tradition and campus-wide effort to give back to the local community. Once a month, Viterbi students have the opportunity to join a Viterbi-sponsored service project or choose one of the many opportunities offered by the USC Volunteer Center.

Viterbi K-12 STEM Center
Viterbi Impact volunteers support programs like Mathematics Engineering Science Achievement (MESA), CS@SC, and Mission Science that focus on providing equitable and culturally-responsive access to STEM education through hands-on projects and activities at local partner schools.

Viterbi Student Organizations
Viterbi Student Organizations like SHPE, SciBAT, AIChE, IISE, ITE, RoboPals, USC Makers, SWE, NSBE, 3D4E, and ASBME coordinate outreach events that promote STEM education to local elementary, middle, and high school students. By facilitating interactive workshops, sharing their engineering journeys or showcasing their design projects, Viterbi student organizations do their part to inspire the next generation of STEM professionals. Learn more about Viterbi affiliated student organizations on EngageSC.

Visit Viterbi Impact Program to start your service journey!

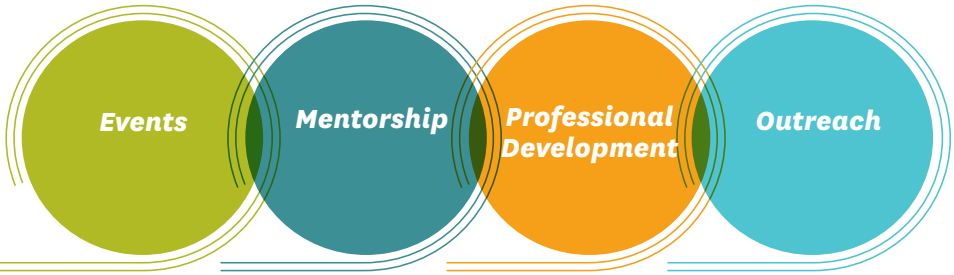
Engaging your Community

We recognize that you are more than just an engineering student and that your classroom experiences, affiliations, and participation in organizations can intersect and overlap in dynamic ways. As you expand your network, learning spaces and perspective, your opportunities to engage in whatever ways you choose will also expand.

WOMEN IN ENGINEERING (WIE)

Viterbi's Women in Engineering (WIE) program offers professional, academic, and social services to students of the Viterbi School of Engineering. WIE recognizes the unique challenges faced by women engineers and seeks to provide resources and overall support that addresses these challenges. WIE's mission is to promote personal and professional success for all students during their time at USC Viterbi and beyond.

USC Viterbi WIE women in engineering



KAHALA NEUMANN, *Industrial and Systems Engineering, Class of 2027*

Viterbi Involvement

- WIE Mentor and Previous Assistant Director of WIE Mentorship
- Current WIE Vice Chair of General Operations
- Grand Challenge Scholars Program

USC Involvement

- Cloud by USC Business Technology Group

" To me, WIE is about building a strong, inclusive community where our members can feel seen, supported and empowered. WIE has been a place where I've grown, not just as a student, but as a leader and friend. It's shown me the power of shared experiences and how meaningful it is to support each other in a field where we're still underrepresented. "

Engaging your Community

JOHN BROOKS SLAUGHTER CENTER (JBS)

Named after the late John Brooks Slaughter, beloved USC Viterbi Professor, and national engineering icon, the center helps advance excellence in engineering by shaping engineers with outstanding technical competence and outstanding character. It is also a space to connect with other students to inspire personal and professional growth. Since its founding in 1975, the recently renamed John Brooks Slaughter Center has also played a vital role in fostering a community that empowers Viterbi students to thrive.

JBS provides space to develop an authentic, supportive network of:

PEERS
Connect with new friends by coming to our study lounge and events.

STAFF
Advocates to connect you with resources.

FACULTY
Opportunities to connect with faculty one-on-one outside of the classroom

ABDELAZIZ ABDELRHMAN, *Electrical & Computer Engineering, Junior, Class of 2025*

Viterbi Involvement

- John Brooks Slaughter Center (JBS)
- Institute of Electrical & Electronic Engineers (IEEE)
- National Society for Black Engineers (NSBE)
- Freshman Academy Coach
- SC Solar Car
- USC Makers

USC Involvement

- Muslim Student Union
- Intramural Sports (IMs)

" My journey with JBS has been a transformative experience, highlighting USC's profound commitment to fostering an inclusive environment. As part of the Peer Mentor program, I have had the privilege of guiding freshmen and transfer students and helping them acclimate to USC's vibrant campus life. My cherished memories included engaging activities designed to strengthen bonds within our diverse community, like participating in friendly competitions, such as bowling, and collaborating to solve puzzles in escape rooms. These experiences have not only been immensely enjoyable but have also served as a testament to the power of unity and teamwork. "

STUDENT ORGANIZATIONS

Student organizations are a great way for you to get involved and connect with your peers. Many student organizations actively sponsor a number of professional, social, and service programs. Can't find exactly what you are looking for? Start your own!

We recognize that you are more than just an engineering student and that your classroom experiences, affiliations, and participation in organizations can intersect and overlap in dynamic ways. As you expand your network, learning spaces, and perspective, your opportunities to engage in whatever ways you choose will also expand.

Visit EngageSC to explore student organizations and events on campus!

TYPES OF GROUPS

Interest-Based Groups

- Cybersecurity and Forensics Organization (CybOrg)
- Makers
- Science Based Academic Tournaments (SciBat)

Design & Competition Teams

- RoboSub
- Rocket Propulsion Laboratory
- SC Solar Car Team
- USC Racing

Identity-Based Groups

- National Society of Black Engineers (NSBE)
- Queers in Engineering, Science, and Technology (QuEST)
- Society of Hispanic Professional Engineers (SHPE)
- Society of Women Engineers (SWE)

Professional Organizations

- American Institute of Chemical Engineers (AIChE)
- American Society of Civil Engineers (ASCE)
- Associated Students of Biomedical Engineering (ASBME)
- Institute of Electrical and Electronics Engineers (IEEE)

Engaging Your Community *Locally and globally*

VITERBI GRAND CHALLENGE SCHOLARS PROGRAM

The Grand Challenges program promotes the ideals of life quality, health solutions, security, and sustainability through research, entrepreneurship, service, and global engagement. You can design your own unique educational experience by addressing one of the 14 challenges below. Join a global network of students who graduate as an National Academy of Engineering (NAE) recognized Grand Challenge Scholar!

Sustainability

- Make solar energy economical
- Provide energy from fusion
- Develop carbon sequestration methods
- Manage the nitrogen cycle
- Provide access to clean water

Health

- Engineer better medicines
- Advance health informatics
- Reverse-engineer the brain

Security

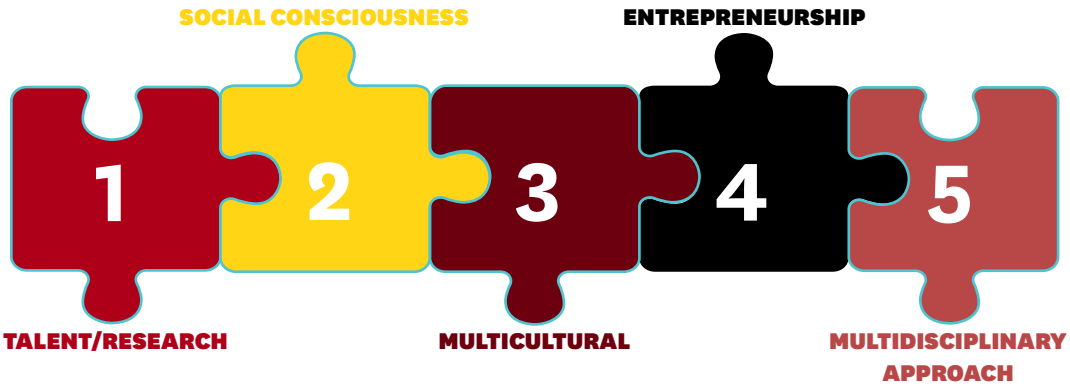
- Secure cyberspace
- Prevent nuclear terror
- Restore and improve urban infrastructure

Joy of Living

- Enhance virtual reality
- Advance personalized learning
- Engineer the tools of scientific discovery

Viterbi Grand Challenge Scholars use the Five Mindset framework to inform and solve for a Grand Challenge we face in our global community. Students accomplish this by demonstrating how the Five Mindsets intersect through participating in activities in and outside of the classroom.

THE FIVE MINDSETS



As a Viterbi Grand Challenge Scholar, you will:

- Demonstrate your understanding of foundational elements to global engagement as it relates to a Grand Challenge
- Develop an approach to solving societal problems to take beyond your undergraduate education
- Apply each of the Five Mindsets through curricular and co-curricular activities

Viterbi

BEYOND THE CLASSROOM

At Viterbi, we believe that learning can occur in all spaces. We encourage you to take advantage of any opportunity to put your classroom knowledge into practice — through undergraduate research, internships, student organizations or volunteer activities.

> *"In my classes, there's always a correct answer — in research, you're the one that has to come up with the answer, and I find that to be one of the most exciting things that an undergrad has the opportunity to participate in."*

MIKE SHAO, *Chemical Engineering, Class of 2021*

Viterbi Involvement

- Freshman Academy Coach
- Mentor in APASS Peer Mentor program
- VP of Finance for American Institute of Chemical Engineers (AIChE)
- Engineering Honors Program (EHP)
- Grand Challenges Scholars Program (GCSP)
- Minor in Business Finance
- Undergraduate Researcher in Armani Research Lab

USC Involvement

- Discretionary Fund Director, Undergraduate Student Government (USG)

> *"As a lower-division student, I was able to get a better idea of how I wanted to shape my academic career by talking to various juniors and seniors, and I love doing the same for the new students."*

W.V.T. RUSCH UNDERGRADUATE ENGINEERING HONORS PROGRAM (EHP)

The W.V.T. Rusch Undergraduate Engineering Honors Program (EHP) is designed to enrich the academic experience of highly motivated and talented Viterbi undergraduate students. EHP students will have the opportunity to enhance their engineering curriculum through the completion of a significant self-directed honors project in the form of either a thesis project (Research Track) or commercialization plan (Innovation Track). The vision of the Engineering Honors Program is to enhance the competitiveness of students for post-graduate opportunities.

Undergraduate Research

Viterbi is committed to making undergraduate research accessible to all Viterbi students. Students benefit from undergraduate research programs by building faculty connections, gaining access to institutional resources, increasing technical skills and exploring personal and professional interests.

CENTER FOR UNDERGRADUATE RESEARCH IN VITERBI ENGINEERING (CURVE)

The Center for Undergraduate Research in Viterbi Engineering (CURVE) is Viterbi's centralized resource for undergraduate students to explore research opportunities early on in their undergraduate career. CURVE matches Viterbi students with research labs and gives students the opportunity to gain experience on a faculty-led research project. CURVE fellows receive funding while conducting research under guidance from faculty and graduate mentors.

JASMINE GONZALEZ, *Civil Engineering (Environmental Engineering), Class of 2025*

"CURVE has been an incredibly useful resource for navigating research and academia, from the process of joining a lab to considering a future in graduate school. As a first-generation student, understanding the subtleties of research felt daunting but CURVE advisors and peer mentors worked with me to understand what I needed in a lab and find the right fit. Now, I am conducting environmental chemistry research with goals of publishing soon. CURVE has provided me the chance to know where academia fits in my future and I am grateful for the enriching experience I've had as a CURVE fellow."

Research Project

- Faculty Mentor: Dr. Daniel McCurry
- Lab: McCurry Lab
- Project: Formation of N-nitrosoglyphosate from glyphosate and nitrite at neutral pH and occurrence in recycled wastewater

Viterbi Involvement

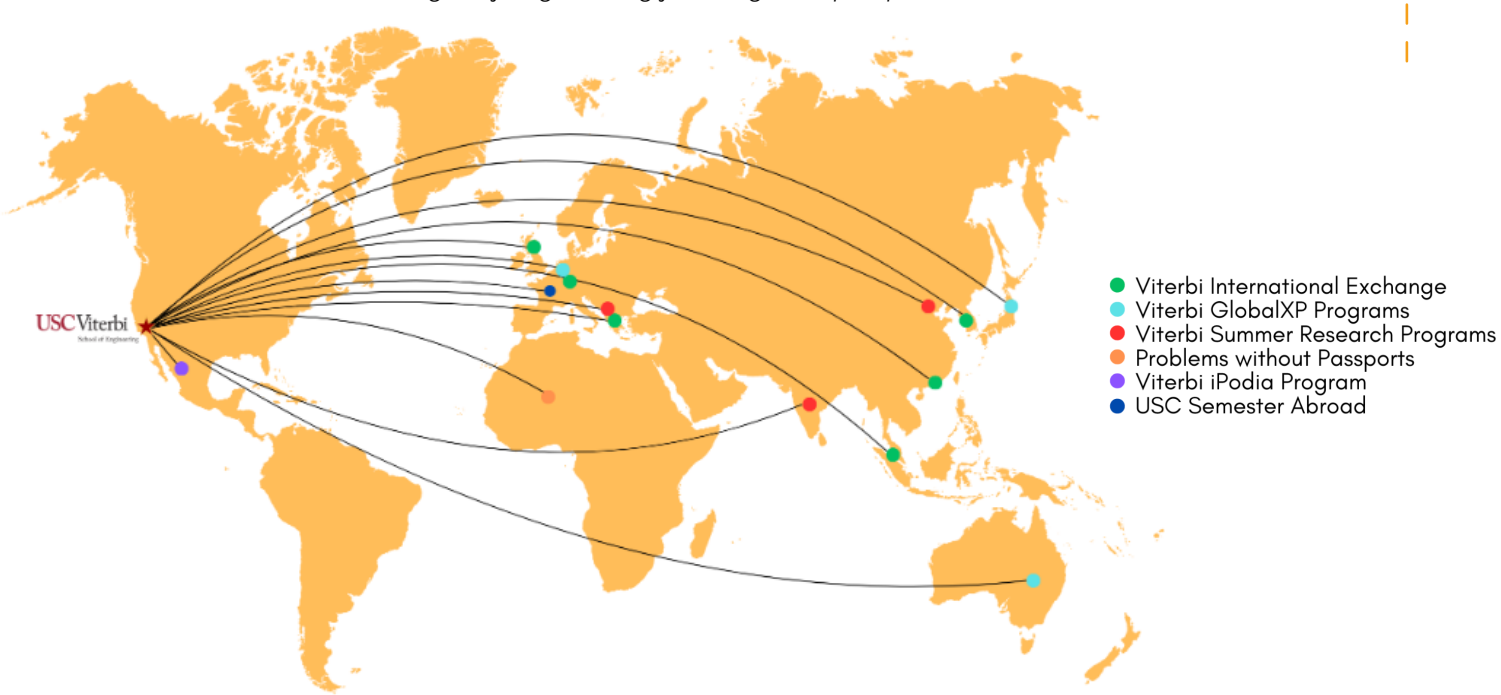
- Meshkati Lab Undergraduate Researcher
- Amazon Summer Research Experience Fellow
- Society of Hispanic Professional Engineers (SHPE)

USC Involvement

- Grupo Folklórico de USC
- Environmental Student Assembly

Global Experiences *Find your passion, here and abroad*

Viterbi students can take advantage of a diverse range of international opportunities to help expand their worldview as future leaders in engineering. Through engineering-specific study abroad programs students can examine the Grand Challenges of Engineering from a global perspective.



VITERBI GLOBALXP PROGRAMS

Viterbi GlobalXP programs (Spring Break, Maymester, and Fall Lead) examines a global Grand Challenge in an interactive and dynamic class space. GlobalXP enables students to make progress towards their engineering degree while traveling abroad for one-three weeks, depending on the program. Students will have the opportunity to visit companies, hear from guest lecturers, and engage in cultural field trips to gain a nuanced global perspective on engineering. Various abroad locations include Tokyo, Sydney, and Berlin.

ALYSSA JAIPERSAUD, *Industrial & Systems Engineering, Class of 2024*

Viterbi Involvement

- Progressive Degree Program (PDP), Green Technologies/Sustainable Engineering
- Grand Challenges Scholars Program (GCSP)
- Viterbi GlobalXP Program, Toyko, Japan
- Viterbi Funding Board
- Engineers Without Borders (EWB)
- Semi-Finalist, Min Family Challenge
- Peer Mentor, Women in Engineering (WIE)
- Queers in Engineering, Science, and Technology (QuEST)
- Research Fellow, Center for Undergraduate Research in Viterbi Engineering (CURVE)

USC Involvement

- Minor in Law & Public Policy
- Student Sustainabiity Committee
- Trojan Archery Team

“ The opportunity to participate in Viterbi’s GlobalXP Program in Tokyo, Japan, was a significant highlight of my time at USC. It allowed me to immerse myself in a new culture, develop friendships, and learn more about the type of engineer that I want to be. ”

Global Experiences

SUMMER RESEARCH ABROAD

Students in the Viterbi Summer Research Abroad program participate in research with faculty for a summer at various international universities, including Tsinghua University in Beijing, RWTH Aachen University in Germany, and Technical University of Crete in Chania, Greece. Students learn first hand the differences in research approaches while also gaining a global engineering perspective.

LYDIA DIBLASIO, *Computer Science, Class of 2023*

" The Viterbi Berlin WRIT 340 GlobalXP experience was the highlight of my Junior year! Every day was an adventure - from analyzing Central Station architecture, walking alongside the Berlin Wall, hearing directly from German engineering professionals, eating at cafes every day, hopping through Museum Island, and everything in between! I was amazed at how quickly I became immersed in the intersection of computer science, Berlin culture, and addressing the Grand Challenges of Engineering on a global scale. Being in Berlin also inspired me to see my career path more creatively and helped me realize that my work at USC can have a global impact. "

Viterbi Involvement

- Progressive Degree Program (PDP) in Computer Science
- President, AthenaHacks Organizer
- Research Assistant, Interaction Lab
- Society for Women in Engineering (SWE)

USC Involvement

- Christian Challenge/Ministry Team
- Mixed Martial Arts Club

VITERBI INTERNATIONAL EXCHANGE PROGRAM

The Viterbi International Exchange Program is an excellent opportunity to live and study at a top university abroad for a full semester. Students in the exchange program pursue academic work that compliments their major and gain a deeper understanding of global engineering while becoming fully-integrated into the culture and lifestyle of the host institution. Various universities include the National University of Singapore, Hong Kong University of Science and Technology, University of Edinburgh, Inha University, and more!

ACADEMIC SUPPORT & RESOURCES

Viterbi's academic resources are designed to support you in your transition to college. Whether you have a programming or physics question, finding help for your courses is only one question away. There's no one way to be a Viterbi student and there's no one way to learn.

VITERBI LEARNING PROGRAM

The Viterbi Learning Program (VLP) is your resource in enhancing your educational experience by supporting your classroom learning through peer mentoring, tutoring, academic success events, and group study sessions. Viterbi certified peer tutors are students who were once in your spot and can offer advice, insight and ability to help you hone in on specific course questions.

RIYANA JENNIFER GOBIN, *Electrical & Computer Engineering, Class of 2023*

Viterbi Involvement

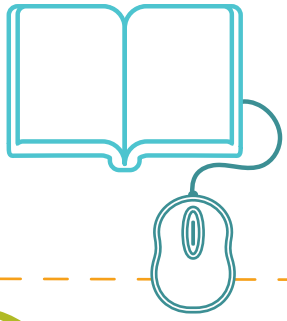
- Viterbi Learning Program Tutor
- Co-Chair, Klein's Institute for Undergraduate Engineering Life (KIUEL)
- Teaching Assistant for CS@SC
- Center for Engineering Diversity
- Director of Membership, USC Makers
- Grand Challenges Scholars Program (GCSP)
- Undergraduate Research in the Space Engineering Research Center

" Through the Viterbi Learning Program, I've been able to offer academic support as well as mentorship to Viterbi students. I've also had the opportunity to pilot a Virtual Reality Tutoring platform which adds an exciting realm to tutoring! "

WAYS WE CAN HELP

1. ***One-on-one tutoring*** *with certified peer tutors*
2. ***Tutor Scheduling Service*** *to find available tutors for your classes*
3. ***Academic Success Events*** *for group study sessions, networking, and skill building*
4. ***Drop-in tutoring*** *for quick questions on specific subjects*
5. ***Writing consultations*** *for help on essays and research papers*

your timeline through **ADVISING**



Viterbi students meet with their academic advisor every semester for mandatory advisement. Appointments take place before your assigned registration date and time each semester.

Advising sessions help ensure that you are working towards your goals, meeting your degree requirements, and staying on track for graduation.

1 SEMESTER START

Have questions about the drop/add deadline, how to get involved, or anything else?

Take advantage of in-person or online Drop-In Advising for quick questions!

2 MID-SEMESTER

Viterbi advisors meet with students each semester for mandatory advisement to talk about classes and explore how to make your interests a reality.

Check your STARS Report for the most up-to-date information on your degree progress.

3 REGISTRATION

The Registrar's Office will assign you a Permit to Register—a specific day and time you are eligible to register for next semester's classes. Until that time, you can build your ideal schedule through

my.usc.edu and Web Registration.

4 END OF SEMESTER

Still have questions? You can still meet with your advisor to help you finish out the semester strong.

Stay Connected!

degree REQUIREMENTS

GENERAL EDUCATION REQUIREMENTS

USC's General Education requirements, or "GE" for short, prepare you to become an informed citizen of the 21st century by learning to think critically and evaluate competing ideas. These requirements are designed to provide you with the skills and knowledge necessary to meet the challenges of a globalized world.

GE A The Arts

GE B Humanistic Inquiry (2 classes required)

GE C Social Analysis (2 classes required)

GE D Life Sciences

GE E Physical Sciences

GE F Quantitative Reasoning

GE G Citizenship in a Global Era

GE H Traditions and Historical Foundations

GESM General Education Seminar

GESM, GE G, and GE H courses can double count for two requirements. GESM course should be taken in Category A, B, or C. Talk to your advisor and check your STARS report.

GENERAL EDUCATION SEMINAR (GESM)

All first-year students must take one of the Core Literacy courses in the GE Seminar format. These specially-designed seminars take place in a small classroom setting.

WRITING REQUIREMENT

All majors are required to complete two writing courses: WRIT 150 (Writing and Critical Reasoning) and WRIT 340 (Advanced Writing) as part of your degree requirements.

Degree Requirements

Students may receive a combined maximum of 32 elective units for college courses taken prior to high school graduation and/or examinations (e.g., AP, IB, or other international exams) taken before matriculation at a two-year or four-year college.

ADVANCED PLACEMENT (AP) EXAMS

SCORE OF 4 OR 5

Calculus AB → MATH 125 + GE-F

Calculus BC (score of 4) → MATH 125 + GE-F

Calculus BC (score of 5) → MATH 126 + GE-F

Chemistry → CHEM 105AL + GE-E

Biology → BISC 120L + GE-D

Physics → GE-E

Art History → GE-A

Statistics → GE-F

Macroeconomics → GE-F

Microeconomics → GE-F

European History → GE-H

U.S. History → GE-H

World History → GE-H

A-LEVEL EXAMS

Chemistry → CHEM 105A + GE-E

Physics → GE-E

Mathematics → MATH 125 + GE-F

INTERNATIONAL BACCALAUREATE (IB) HL EXAMS

SCORE OF 5, 6, OR 7

Mathematics (5, 6, or 7) → MATH 125 + GE-F

Chemistry (6 or 7) → CHEM 105aL + GE-E

Biology (5, 6, or 7) → BISC 120L + GE-D

Physics → GE-E

Economics → GE-F

History of Africa & the Middle East → GE-H

History of Asia/Oceania → GE-H

History of the Americas → GE-H

History of Europe → GE-H

Dance, Film, Music, Theatre, or Visual Arts → GE-A

Global Politics → GE-G

Please refer to your advisor for additional exam equivalencies.

SPECIAL PHYSICS NOTE FOR COMPUTER SCIENCE, ELECTRICAL & COMPUTER ENGINEERING, AND INDUSTRIAL & SYSTEMS ENGINEERING

AP Physics C (Mechanics and Electricity/Magnetism), IB Physics (HL) and A-level physics exams are not equivalent to PHYS 151 or PHYS 152 but students may be able to fulfill the science requirements for these majors with exam credits. Talk to your academic advisor if you took any of these exams.

Aerospace & Mechanical Engineering

Aerospace and mechanical engineers (AME) design complex mechanical, thermal, fluidic, acoustical, optical, and electronic systems, with characteristic sizes ranging from microns to tens of kilometers. Such systems are used everywhere, from the depths of the ocean to near-earth, planetary, interplanetary and galactic space.

JOIN ONE OF AME'S DESIGN TEAMS

- Advanced Spacecraft Propulsion and ENergy (ASPEN)
- AeroDesign Team (ADT)
- USC Racing (FSAE)
- USC Formula Electric
- Recumbent Vehicle Design Team (RVDT)
- Advanced Robotic Combat
- Autonomous Underwater Vehicle*
- Advanced Composites Design Team (ACDT)

**also in CSCI and ECE*

POPULAR STUDY ABROAD SITES

- University of Auckland
- University of Edinburgh
- University of Melbourne
- Queen Mary, London

PROFESSIONAL STUDENT ORGANIZATIONS

- American Institute of Aeronautics and Astronautics (AIAA)
- SAE International
- American Society of Mechanical Engineers (ASME)

Thinking about studying abroad? Spring of sophomore year is the recommended time for AME students.

RESEARCH

Dr. Paul Ronney

LAB: Combustion Physics Lab

RESEARCH FOCUS: Combustion problems but more generally on "chemically-reacting flows"

RESEARCH PROJECT: Efficient propulsion systems for clusters of small satellites

COURSES: AME 101 (Intro to Mechanical Engineering) and AME 436 (Automotive & Flight Propulsion)

FUN FACT: Dr. Ronney was the Payload Specialist Astronaut (Alternate) for two Space Shuttle missions in 1997

CAREERS

Alejandro Gonzalez

Class of 2019, Aerospace Engineering

Advanced Concepts Engineer at The Boeing Company

My job is to create future aircraft and aircraft technologies. Specifically, I use engineering tools to evaluate new concepts that can be applied to aircraft in order to better improve them for customers and the world as a whole.

I love that I get to do exactly what I went to school for. You often hear that people attend college and get a degree that they "never use" but I use the fundamentals and skills that I learned at USC every day.

Advice? Get involved with the AeroDesign Team!

Aerospace Engineering

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
WRIT 150 (4)	GESM (GE B)# (4)	AME 201 *MATH 125 or 126 or 226* (4)	AME 261 (4)	GE D* (4)	GE C (4)	GE A* (4)	WRIT 340 *WRIT 150* (4)
AME 105 (4)	GE B (4)	MASC 310L (4)	AME 204 *AME 201* (4)	AME 301 *AME 201, (MATH 245)* (4)	AME 310 *PHYS 151 and MATH 125 or 126 or 226* (4)	GE C (4)	AME 436 *AME 310* (4)
MATH 125 (GE F)* (4)	MATH 126 or MATH 129* *MATH 125* (4)	MATH 226 or MATH 229 *MATH 126 or 129* (4)	MATH 245 *MATH 226 or 229* (4)	AME 308 *AME 204, (AME 301)* (4)	AME 309 *AME 201, (MATH 245)* (4)	AME 451 *AME 302a, AME 302b* (4)	AME 481 (4)
CHEM 105AL or MASC 110L* (4)	PHYS 151L (GE E) *MATH 125 or 126 or 226* (4)	PHYS 152L *PHYS 151L, (MATH 226)* (4)	AME 208 *co-req--MATH 245* (4)	AME 341aL *PHYS 152, AME 208* (4)	AME 341bL *AME 341a* (4)	AME 441aL *AME 308, AME 341a, AME 341b* (4)	PHYS 153 *PHYS 152* (4)
ENGR 102 (2)	TAC 168 (2)	OPTIONAL ELECTIVE (2)	OPTIONAL ELECTIVE (2)	AME 302a *MATH 245* (2)	AME 302b *AME 302a, MATH 245* (2)	OPTIONAL ELECTIVE (2)	OPTIONAL ELECTIVE (2)

MATHEMATICS (16 UNITS)

MATH 125: Calculus I*
MATH 126 or MATH 129: Calculus II*
MATH 226 or MATH 229: Calculus III
MATH 245: Mathematics of Phys. and Engr.

PHYSICS (12 UNITS)

PHYS 151L: Mechanics and Thermodynamics
PHYS 152L: Electricity and Magnetism
PHYS 153L: Optics and Modern Physics

CHEMISTRY/MATERIALS SCIENCE (4 UNITS)

CHEM 105aL: General Chemistry*
or MASC 110L: Materials Science

GENERAL EDUCATION (32 UNITS)

GE A The Arts (1 Course)*
GE B Humanistic Inquiry (2 Courses)
GE C Social Analysis (2 Courses)
GE D Life Sciences (1 Course)*
GE E Physical Sciences (1 Course)*
GE F Quantitative Reasoning (1 Course)*
GE G,H Global Perspectives (2 Courses)*
GESM General Education Seminar (1 Course)

WRITING (8 UNITS)

WRIT 150: Writing and Critical Reasoning
WRIT 340: Advanced Writing

ENGINEERING (70 UNITS)

AME 105: Intro. to Aerospace Engineering
AME 201: Statics
AME 204: Mechanics of Materials & Structures
AME 208: Computational Methods in Engineering
AME 261: Basic Flight Mechanics
AME 301: Dynamics
AME 302a: Systems
AME 302b: Systems
AME 308: Computer-Aided Engineering
AME 309: Dynamics of Fluids
AME 310: Engineering Thermodynamics I
AME 341aL: Mechoptronics Laboratory
AME 341bL: Mechoptronics Laboratory
AME 436: Automotive & Flight Propulsion
AME 441aL: Senior Projects Laboratory
AME 451: Linear Control Systems I
AME 481: Aircraft Design
ENGR 102: Engineering Freshman Academy
TAC 168: Introduction to MATLAB
MASC 310L: Materials Behavior and Processing

SPECIAL NOTES

*Courses with the * symbol may be satisfied with AP, IB or A-Level exams. See page 18 for more information.*

GESM#: GESM can be taken from GE categories: A, B, C, or D. Courses listed in the guide are options for a four-year course plan.

GE: Engineering students are encouraged to satisfy GE-G and GE-H with a course that also satisfies a Core Literacy. GE-H may be satisfied by AP/IB. Additionally, your GESM course should be taken in categories A, B, C, or D only. See page 17 for more information and consult your advisor for detailed assistance.

OPTIONAL ELECTIVES: Consult with your academic advisor to explore optional elective courses. These courses are not required.

PHYSICS REQUIREMENT: PHYS 161-163 and PHYS 171-173 are acceptable towards this requirement.

Mechanical Engineering

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
WRIT 150 4	GESM (GE B)# 4	GE C 4	AME 208 *co-req: MATH 245* 4	GE C 4	MASC 310L 4	GE B 4	WRIT 340 *WRIT 150* 4
AME 101L *(MATH 125)* 4	GE A* 4	AME 201 *MATH 125 or 126 or 226* 4	AME 204 *AME 201* 4	AME 301 *AME 201, (MATH 245)* 4	AME 310 *PHYS 151 and MATH 125 or 126 or 226* 4	AME 431 *AME 310, (AME 309)* 4	GE D 4
MATH 125 (GE F)* 4	MATH 126 or MATH 129* *MATH 125* 4	MATH 226 or MATH 229 *MATH 126 or 129* 4	MATH 245 *MATH 226 or 229* 4	AME 308 *AME 204, (AME 301)* 4	AME 309 *AME 201, (MATH 245)* 4	TECHNICAL ELECTIVE 4	TECHNICAL ELECTIVE 4
CHEM 105AL or MASC 110L* 4	PHYS 151L (GE E) *MATH 125 or 126 or 226* 4	PHYS 152L *PHYS 151L, (MATH 226)* 4	PHYS 153L *PHYS 152* 4	AME 341aL *PHYS 152, AME 208* 4	AME 341bL *AME 341a* 4	AME 441aL *AME 308, AME 341a, AME 341b* 4	CAPSTONE ELECTIVE 4
ENGR 102 2	TAC 168 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	AME 302a *MATH 245* 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2

MATHEMATICS (16 UNITS)

MATH 125: Calculus I*
MATH 126 or MATH 129: Calculus II*
MATH 226 or MATH 229: Calculus III
MATH 245: Mathematics of Phys. and Engr.

PHYSICS (12 UNITS)

PHYS 151L: Mechanics and Thermodynamics
PHYS 152L: Electricity and Magnetism
PHYS 153L: Optics and Modern Physics

CHEMISTRY/MATERIALS SCIENCE (4 UNITS)

CHEM 105aL: General Chemistry*
or MASC 110L: Materials Science

GENERAL EDUCATION (32 UNITS)

GE A The Arts (1 Course)*
GE B Humanistic Inquiry (2 Courses)
GE C Social Analysis (2 Courses)
GE D Life Sciences (1 Course)*
GE E Physical Sciences (1 Course)*
GE F Quantitative Reasoning (1 Course)*
GE G,H Global Perspectives (2 Courses)*
GESM General Education Seminar (1 Course)

WRITING (8 UNITS)

WRIT 150: Writing and Critical Reasoning
WRIT 340: Advanced Writing

ENGINEERING (68 UNITS)

AME 101L: Intro. to Mechanical Engineering
AME 201: Statics
AME 204: Mechanics of Materials & Structures
AME 208: Computational Methods in Engineering
AME 301: Dynamics
AME 302a: Systems
AME 308: Computer-Aided Engineering
AME 309: Dynamics of Fluids
AME 310: Engineering Thermodynamics I
AME 341aL: Mechoptronics Laboratory
AME 341bL: Mechoptronics Laboratory
AME 431: Heat Transfer
AME 441aL: Senior Projects Laboratory
AME CAPSTONE ELECTIVE
ENGR 102: Engineering Freshman Academy
TAC 168: Introduction to MATLAB
MASC 310L: Materials Behavior & Processing
TECHNICAL ELECTIVES

SPECIAL NOTES

*Courses with the * symbol may be satisfied with AP, IB or A-Level exams. See page 18 for more information.*

GESM#: GESM can be taken from GE categories: A, B, C, or D. Courses listed in the guide are options for a four-year course plan.

GE: Engineering students are encouraged to satisfy GE-G and GE-H with a course that also satisfies a Core Literacy. GE-H may be satisfied by AP/IB. Additionally, your GESM course should be taken in categories A, B, C, or D only. See page 17 for more information and consult your advisor for detailed assistance.

PHYSICS REQUIREMENT: PHYS 161-163 and PHYS 171-173 are acceptable towards this requirement.

AME CAPSTONE: See academic advisor for approved list of courses.

TECHNICAL ELECTIVES: Any upper-division course in engineering, chemistry, physics or mathematics.

OPTIONAL ELECTIVES: Consult with your academic advisor to explore optional elective courses. These courses are not required.

Astronautical Engineering

The Astronautical Engineering (ASTE) program provides the fundamentals of science and engineering with specialized courses in astronautic and technical electives. ASTE students learn spacecraft and launch vehicle design and operations, propulsion, orbital mechanics, spacecraft dynamics and control, navigation, instrumentation and sensors, and much more.

ASTE operates the Space Engineering Research Center which builds and launches spacecraft as well as prototypes and flies new inventions in space technology. For instance, CLINGERS, a docking system based on a device patented by faculty member Berok Khoshnevis, is currently flying on the International Space Station.

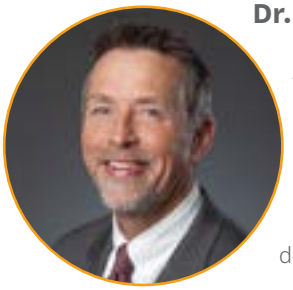
JOIN ONE OF ASTE'S STUDENT ORGANIZATIONS

- Rocket Propulsion Lab
- Liquid Propulsion Lab
- Students for the Exploration & Development of Space (SEDS) USC Chapter

POPULAR STUDY ABROAD SITES

- University of Auckland
- National University of Singapore
- Hong Kong University of Science & Technology

RESEARCH



Dr. Dan Erwin

AREA OF RESEARCH: Astrodynamics, autonomous vehicles

RESEARCH PROJECT: AI for low thrust spacecraft trajectory design

COURSES: ASTE 101 (Introduction to Astronautics) and ASTE 280 (Foundations of Astronautical Engineering)

FUN FACT: Dr. Erwin likes to ride motorcycles and mentors the Rocket Propulsion Lab

CAREERS

Lauren Potterat, BS, MS 2021, Astronautical Engineering
Executive Engineer, Rocket Propulsion Laboratory (2020-2021)

Starship Software Engineer, SpaceX

At SpaceX, I design and implement simulation software that stress tests Starship's various operational configurations. I work closely with hardware, software, and flight operations engineers who use this software to verify vehicle readiness for flight. I have traversed several roles at SpaceX (including Mission Control Operations, Operator Training and Mission Management) and have found my experience in USC RPL critical in building the foundational engineering skills I apply daily - grit, willingness to fail quickly and iterate, and the importance of the interpersonal connections as we endeavor to make human spaceflight safer, faster, and more accessible than ever before.

The most valuable lesson I learned from my time at USC (particularly USC RPL) was to fail forward, fail fast, and frequently (almost unapologetically) question your assumptions. Per aspera ad astra!

Astronautical Engineering

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
WRIT 150 4	GESM (GE B)# 4	GE C 4	AME 204 *AME 201* 4	PHYS 153L *PHYS 152L* 4	AME 301 *AME 201 (MATH 245)* 4	GE C 4	GE B 4
ASTE 101L 4	GE A* 4	AME 201 *MATH 125 or 126 or 129* 4	AME 208 *MATH 245* 4	ASTE 331 *ASTE 280 (PHYS 153)* 4	AME 341BL *AME 341AL* 4	TECHNICAL ELECTIVE 4	ASTE 421 *ASTE 331 or ASTE 331ab* 4
MATH 125 (GE F)* 4	MATH 126 or MATH 129* *MATH 125* 4	MATH 226 or MATH 229 *MATH 126 or 129* 4	MATH 245 *MATH 226 or 229* 4	AME 310 *PHYS 151, MATH 125* 4	ASTE 305 *PHYS 153, AME 310 (MATH 245)* 4	ASTE 475 *PHYS 152L and ASTE 305 or AME 309* 2	WRIT 340 *WRIT 150* 4
CHEM 105aL or MASC 110L* 4	PHYS 151L (GE E) *MATH 125 or 126 or 226* 4	PHYS 152L *PHYS 151L, (MATH 226)* 4	ASTE 280 *PHYS 152* 4	AME 341aL *PHYS 152, AME 208* 4	AME 308 *AME 204, (AME 301)* 4	ASTE 404 4	TECHNICAL ELECTIVE 4
ENGR 102 2	TAC 168 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	GE D* 4	OPTIONAL ELECTIVE 2

MATHEMATICS (16 UNITS)

MATH 125: Calculus I*
MATH 126 or MATH 129: Calculus II*
MATH 226 or MATH 229: Calculus III
MATH 245: Mathematics of Phys. and Engr.

PHYSICS (12 UNITS)

PHYS 151L: Mechanics and Thermodynamics
PHYS 152L: Electricity and Magnetism
PHYS 153L: Optics and Modern Physics

CHEMISTRY/MATERIALS SCIENCE (4 UNITS)

CHEM 105aL: General Chemistry*
or MASC 110L: Materials Science

GENERAL EDUCATION (32 UNITS)

GE A The Arts (1 Course)*
GE B Humanistic Inquiry (2 Courses)
GE C Social Analysis (2 Courses)
GE D Life Sciences (1 Course)*
GE E Physical Sciences (1 Course)*
GE F Quantitative Reasoning (1 Course)*
GE G,H Global Perspectives (2 Courses)*
GESM General Education Seminar (1 Course)

WRITING (8 UNITS)

WRIT 150: Writing and Critical Reasoning
WRIT 340: Advanced Writing

ENGINEERING (70 UNITS)

AME 201: Statics
AME 204: Strength of Materials
AME 208: Mathematical Methods in ENGR
AME 301: Dynamics
AME 308: Comp. Aided Analysis for Design
AME 310: Engineering Thermodynamics I
AME 341aL: Mechoptronics Laboratory I
AME 341bL: Mechoptronics Laboratory II
ASTE 101L: Intro. to Astronautics
ASTE 280: Astronautics & Space Environment I
ASTE 305: Astronautics Gas Dynamics
ASTE 331: Spacecraft Systems Engineering
ASTE 404: Computational Programming & Numerical Methods
ASTE 421: Space Mission Design
ASTE 475: Rocket Propulsion
ENGR 102: Engineering Freshman Academy
TAC 168: Introduction to MATLAB
TECHNICAL ELECTIVES

SPECIAL NOTES

*Courses with the * symbol may be satisfied with AP, IB or A-Level exams. See page 18 for more information.*

GESM#: GESM can be taken from GE categories: A, B, C, or D. Courses listed in the guide are options for a four-year course plan.

GE: Engineering students are encouraged to satisfy GE-G and GE-H with a course that also satisfies a Core Literacy. GE-H may be satisfied by AP/IB. Additionally, your GESM course should be taken in categories A, B, C, or D only. See page 17 for more information and consult your advisor for detailed assistance.

TECHNICAL ELECTIVES: Any upper-division course in engineering, chemistry, physics, and mathematics. See academic advisor for exceptions/substitutions.

Biomedical Engineering

The interdisciplinary field of biomedical engineering (BME) combines elements of engineering (electronics, systems analysis, mechanics) with the life sciences (biology, physiology, biochemistry) to define and solve problems in biology and medicine.

INTERESTED IN PRE-MED?

- BME programs can adapt to include most medical school prerequisites, while also providing applied technical training beyond the basic life sciences.

JOIN ONE OF BME'S STUDENT ORGANIZATIONS

- The Associated Students of Biomedical Engineering (ASBME)
- MEDesign

POPULAR STUDY ABROAD SITES

- Queen Mary, London
- University of Queensland
- University of Melbourne
- University of Galway
- University of Edinburgh

RESEARCH

Dr. Jennifer Treweek

LAB: Treweek Lab

RESEARCH FOCUS: Systems neuroscience and biomedical imaging

RESEARCH PROJECT: Imaging how neural networks adapt to chronic stress

COURSES: BME 202 (Control and Communication in the Nervous System)

FUN FACT: My first formative research experience as a Caltech undergraduate was in Prof. Rich Roberts laboratory. In my new lab in USC Michelson Center for Convergent Bioscience, we are "neighbors" on MCB's 2nd floor.

NON-ENGINEERING: I've been to the highest point in 48 of 50 states in the US (and "above the treeline" in all 50)

CAREERS

Rhea Choudhury

Class of 2019, Biomedical Engineering, Healthcare Studies Minor

Systems R&D Engineer at Edwards Lifesciences

I design, develop and test products that monitor patients in the ICU. Think of every hospital scene where there's a beeping machine displaying the patient's heart rate — my work is centered on making sure those machines display key patient information, are user-friendly to nurses and physicians, and that all the connected sensors that collect anatomical data directly from patients are accurate. I'm lucky that my role is hands-on and cross-functional. I get to work in an actual research lab, designing, testing and perfecting products for most of my day. Coming out of college, I really wanted a position where I could exercise my love of engineering and problem solving, while feeling like I was still making a tangible impact in the healthcare world, for patients. An R&D role, especially on the kinds of monitoring products I work on, allows me to fundamentally shape the products that go out into hospitals, and simultaneously learn from cutting edge industry experts about the progress of the field as a whole.

Biomedical Engineering

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
BME 101 or GE A/B/B/C/C 4	BME 101 or GE A/B/B/C/C 4	BME 202 *MATH 126 or 129* 4	BISC 220L (GE D) 4	EE 202L *PHYS 152L, (MATH 245)* 4	TECHNICAL ELECTIVE 4	BME 302 *EE 202L* 4	BME 415 2
WRIT 150 4	GESM 4	GE A/B/B/C/C (gw or gp as needed) 4	BME 210 *(MATH 245)* 4	BME 423 *MATH 245* 4	GE A/B/B/C/C (gw or gp as needed) 4	**BISC 320L, BISC 312 or HBIO 301L** **See Special Note** 4	GE A/B/B/C/C (gw or gp as needed) 4
MATH 125 (GE F)* 4	MATH 126 OR MATH 129* *MATH 125* 4	PHYS 151L (GE E) *MATH 125 or 126 or 226* 4	MATH 245 *MATH 226 or 229* 4	CHEM 322aL *CHEM 105bL* 4	WRIT 340 4	**BME 445aL Senior Project** Prereq: BME 210 Co-req: EE 202 2	**BME 445bL Senior Project** BME 445aL 2
CHEM 105aL (GE E)* 4	CHEM 105bL *CHEM 105aL* 4	**MATH 226/229** 4	PHYS 152L *PHYS 151L, (MATH 226)* 4	BME ANCHOR COURSE 4	CHEM 322bL *or 400-level BME Course* 4	BME 413 *PHYS 152L* 4	**BME 403L** Prereq: BISC 220 & MATH 245 Co-req: EE 202 4
ENGR 102 Recommended 2	TAC 165 or OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	TECHNICAL ELECTIVE 2	TECHNICAL ELECTIVE 4

MATHEMATICS (16 UNITS)

MATH 125: Calculus I*
MATH 126 or 129: Calculus II*
MATH 226 or 229: Calculus III
MATH 245: Mathematics of Phys. and Engr.

PHYSICS (8 UNITS)

PHYS 151L: Mechanics and Thermodynamics
PHYS 152L: Electricity and Magnetism

CHEMISTRY (16 UNITS)

CHEM 105aL: General Chemistry*
CHEM 105bL: General Chemistry
CHEM 322aL: Organic Chemistry
CHEM 322bL: Organic Chemistry **or** 400-level BME course

BIOLOGY (8 UNITS)

BISC 220L: Cell Biology & Physiology
Choice between: BISC 320L BISC 312, or HBIO 301L

GENERAL EDUCATION (32 UNITS)

GE A The Arts (1 Course)*
GE B Humanistic Inquiry (2 Courses)
GE C Social Analysis (2 Courses)
GE D Life Sciences (1 Course)*
GE E Physical Sciences (1 Course)*
GE F Quantitative Reasoning (1 Course)*
GE G,H Global Perspectives (2 Courses)*
GESM General Education Seminar (1 Course)

WRITING (8 UNITS)

WRIT 150: Writing and Critical Reasoning
WRIT 340: Advanced Writing

ENGINEERING (55 UNITS)

BME 101: Intro. to Biomedical Engineering
BME 202: Control/Comm. in Nervous System
BME 210: Biomed. Comp. Simulation Methods
BME 302L: Medical Electronics
BME 403L: Physiological Systems
BME 413: Bioengineering Signals & Systems
BME 415: Regulation of Medical Products
BME 423: Statistical Methods in BME
BME 445aL: Senior Projects
BME 445bL: Senior Projects
EE 202L: Linear Circuits
ENGR 102: Engineering Freshman Academy
BME ANCHOR COURSE:
BME 404, BME 410L, BME 430, BME 450, or BME 451
TECHNICAL ELECTIVES (10 UNITS)

SPECIAL NOTES

*BISC 320L has a prerequisite of CHEM 105bL. BISC 312 and HBIO have no prerequisites.

Courses with the * symbol may be satisfied with AP, IB or A-Level exams. See page 18 for more information.

GESM#: GESM can be taken from GE categories: A, B, or C. Courses listed in the guide are options for a four-year course plan.

GE: Engineering students are encouraged to satisfy GE-G and GE-H with a course that also satisfies a Core Literacy. GE-H may be satisfied by AP/IB. Additionally, your GESM course should be taken in categories A, B, or C only. See page 17 for more information and consult your advisor for detailed assistance.

TECHNICAL ELECTIVES (10 units): Taken from ONE of the following three areas of specialization: Bioelectronics/Computers: (BME 201, BME 204, BME 426, BME 427, BME 430, BME 451, BME 453, CSCI 445, EE 109L, EE 209. EE 338, EE 348L, EE 352L, EE 354L, EE 454L, EE 483, ENGR 345 or ITP 308) or Biomechanics: (AME 201, AME 204, AME 301, AME 302, AME 308 or ITP 308, AME 309, BME 201, BME 204, BME 404, BME 408, BME 412, BME 414, BME 426, BME 427,BME 453 or MASC 310) Molecular-Cellular Engineering: (BME 201, BME 204, BME 406, BME 412, BME 414, BME 430, BME 453, BME 459, CHE 330, CHE 350, CHE 460L, CHE 489, ENGR 305, TAC 308, or MASC 310)

The Organic Chemistry option allows students in BME, BMEL, and BMEN to replace one semester of Organic Chemistry with an additional 4-unit 400-level BME course.

Emphasis Course Tracks for **Biomedical Engineering**

The Biomedical Engineering (BME) curriculum covers foundational concepts during the first few semesters. Students following the standard program will have the opportunity to take more technical electives, while students pursuing one of the optional specializations will take courses related to that content area.

Electrical (BMEN)

SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING
BME 202 *MATH 126 or 129* 4	EE 109L *ITP 165* 4	EE 202L *PHYS 152L, (MATH 245)* 4	**FIRST TRACK COURSE: EE 338 or EE 250** 4	**BISC 320L, BISC 312 or HBIO 301L** **See Special Note #1 on Pg 25** 4	**CHEM 322aL** *CHEM 105bL* **or 400-LEVEL BME COURSE** 4
GE A/B/B/C/C 4	BME 210 *(MATH 245)* 4	BME 423 *MATH 245* 4	GE A/B/B/C/C 4	**SECOND TRACK COURSE:** *EE 348 or EE 354* 4	**THIRD TRACK COURSE:** BME 302/EE 447 **or** EE 454/EE 459/ EE 477 4
MATH 226 or MATH 229 *MATH 126 or 129* 4	MATH 245 *MATH 226 or 229* 4	WRIT 340 *WRIT 150* 4	BISC 220L 4	BME 413 *PHYS 152L* 4	**BME 403L** *BISC 220L, MATH 245, EE 202L* 4
PHYS 151L (GE E) *MATH 125 or 126 or 226* 4	PHYS 152L *PHYS 151L, (MATH 226)* 4	TECHNICAL ELECTIVE 2	TECHNICAL ELECTIVE 3	BME 445aL Senior Project 2	BME 445bL Senior Project 2
OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	TECHNICAL ELECTIVE 4	OPTIONAL ELECTIVE 2	GE A/B/B/C/C 4	BME 415 2

ELECTRICAL TRACKS

ANALOG TRACK
FIRST TRACK COURSE:
EE 338

SECOND TRACK COURSE:
EE 348

THIRD TRACK COURSE:
BME 202 OR **EE 447**

DIGITAL TRACK
FIRST TRACK COURSE:
EE 250

SECOND TRACK COURSE:
EE 354

THIRD TRACK COURSE:
EE 454, EE 459 OR **EE 477**

TECHNICAL ELECTIVES (9 UNITS)

Mechanical (BMEL)

SECOND YEAR			
SPRING			
AME 201 4	BME 210 *(MATH 245)* 4	MATH 245 *MATH 226 or 229* 4	PHYS 152L *PHYS 151L, (MATH 226)* 4

THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING
BME 404* 4	GE A/B/B/C/C (gw or gp as needed) 4	**BISC 320L**, BISC 312 or HBIO 301L** **See Special Note #1 on Pg 25** 4	AME 309/ AME 416/ CHEM 322aL/ MASC 310 4
AME 204 3	AME 301 4	BME 413 *PHYS 152L* 4	GE A/B/B/C/C (gw or gp as needed) 4
BME 423 4	BISC 220 4	BME 445aL Senior Projects 2	BME 445bL Senior Projects 2
EE 202 4	TAC 308 4	BME 403L 4	BME 415 4
OPTIONAL ELECTIVE 2	TECHNICAL ELECTIVE 2	WRIT 340 4	TECHNICAL ELECTIVE 3

*(offered "even" falls - or replacement (HBIO 408/BME 504))
**(fall only) or replacement HBIO 301L (fa/sp) or BISC 312 (sp)
TECHNICAL ELECTIVES (5 UNITS)

Molecular-Cellular (BMCE)

THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING
BISC 320L *CHEM 105bL* 4	GE A/B/B/C/C 4	THIRD PANEL COURSE 4	**BME 403L** 4
FIRST PANEL COURSE 4	SECOND PANEL COURSE 4	EE 202L *PHYS 152L, (MATH 245)* 4	FOURTH PANEL COURSE 4
CHEM 322aL *CHEM 105bL* 4	CHEM 322bL *CHEM 322aL* 4	GE A/B/B/C/C 4	WRIT 340 *WRIT 150* 4
BME 423 *MATH 245* 4	BISC 330L *CHEM 322aL* 4	BME 413 *PHYS 152L* 4	BME 415 2
OPTIONAL ELECTIVE 2-4	OPTIONAL ELECTIVE 2-4	BME 445aL Senior Projects 2	BME 445bL Senior Projects 2

BMCE Panel Course Options:
BME 406, BME 410L, BME 430, BME 459L, or CHE 489

Technical Electives (2 UNITS)

Chemical Engineering

The Mork Family Department of Chemical Engineering

Chemical engineers design, control, and optimize large-scale chemical, physiochemical, and biochemical processes. They are involved in the development and design of new materials ranging from advanced composites used in automotive and space-related industries to materials used in the biomedical and electronics fields.

Chemical engineers are uniquely qualified to provide solutions to pressing problems in the fields of energy, environment, and materials science and are employed in diverse industries:

- Chemicals
- Pharmaceuticals
- Biotechnology
- Energy
- Materials (including bio- and nanomaterials)
- Environmental

JOIN ONE OF CHE'S PROFESSIONAL STUDENT ORGANIZATIONS

- American Institute of Chemical Engineers (AICHE)
- Women in Chemical Engineering (WICHE)
- Society of Petroleum Engineers (SPE)
- Materials Research Society (MRS)

RESEARCH

Dr. Shaama Sharada

RESEARCH FOCUS: Explores the need for sustainable, energy- and material-efficient transformations

LAB: Our research group includes five PhD students, one masters, and two undergraduate students. We are always on the lookout for students with a penchant for chemistry, modeling, simulation, and coding

RESEARCH PROJECT: We seek to harness the power of the sun to convert greenhouse gases like CO_2 into useful products like fuels and chemicals

COURSES: CHE450 (Elective on Sustainable Energy)

FUN FACT: In the sustainable energy class, my students learn that paper cups can be more unsustainable and environmentally damaging than plastic cups!

CAREERS

Shuntaro Nishi

Class of 2019, Chemical Engineering (Nanotechnology)

Technical Analyst at Kite Pharma

I am part of a two-year program where I rotate among four different business units (manufacturing, quality, process development, and supply chain) to diversify my skill set and gain expertise in the cell therapy industry.

The opportunity to gain so much exposure within the first two years out of college, while working for a company whose mission is to cure cancer, has been an invaluable and meaningful experience.

Being a Viterbi Student Ambassador was the most valuable experience throughout my years at USC. The ability to speak in front of large audiences along with asking the right questions through my time on the Viterbi Voices Podcasts are both things that I take with me in my career.

Chemical Engineering

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
WRIT 150 4	CHE 120 *(MATH 125, CHEM 105AL) or GE A* 4	CHE 330 *(MATH 226g)* 4	PHYS 152L *PHYS 151L, (MATH 226)* 4	GE C 4	GE B 4	GE D* 4	GE C 4
CHE 120 *(MATH 125, CHEM 105a) or GE A* 4	MATH 126 or MATH 129* *MATH 125* 4	MATH 226 or MATH 229 *MATH 126 or 129* 4	CHEM 322aL *CHEM 105bL* 4	CHE ELECTIVE 4	CHE 444cL *CHE 330, 444bL (CHE 447)* 2	CHE 460L *CHE 120, (MATH 245)* 4	CHE 480 *CHE 485* 4
MATH 125 (GE F)* 4	CHEM 105bL *CHEM 105aL* 4	PHYS 151L (GE E) *MATH 125 or 126 or 226* 4	MATH 245 *MATH 226 or 229* 4	*CHEM 430* *CHEM 300L or 322aL, MATH 226, PHYS 151L* 4	CHE 442 *MATH 245, CHE 443* 4	CHE 485 *CHE 442, CHE 443* 4	CHEMISTRY ELECTIVE 4
CHEM 105aL (GE E)* 4	GESM (GE B)# 4	CHE 305 *MATH 125 or 126 or 226* 4	CHE 444aL *CHE 120, (CHE 330, CHE 350)* 2	CHE 443 *(CHE 350 or MATH 245)* 4	CHE 447 *MATH 245, CHE 443* 4	WRIT 340 *WRIT 150* 4	STEM ELECTIVE 4
ENGR 102 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	CHE 350 *CHEM 105bL or 115bL and CHE 330* 4	CHE 444bL *CHE 330, (CHE 443)* 2	OPTIONAL ELECTIVE 4	ENGINEERING ELECTIVE 4	OPTIONAL ELECTIVE 2

MATHEMATICS (16 UNITS)

MATH 125: Calculus I*

MATH 126 or 129: Calculus II*

MATH 226 or 229: Calculus III

MATH 245: Mathematics of Phys. and Engr.

PHYSICS (8 UNITS)

PHYS 151L: Mechanics and Thermodynamics

PHYS 152L: Electricity and Magnetism

CHEMISTRY (20 UNITS)

CHEM 105aL: General Chemistry*

CHEM 105bL: General Chemistry

CHEM 322aL: Organic Chemistry

CHEM 430: Physical Chemistry: Thermodynamics & Kinetics

CHEMISTRY ELECTIVE:

CHEM 300L: Analytical Chemistry

or CHEM 322bL: Organic Chemistry

or CHEM 431: Physical Chemistry: Quantum Mechanics

GENERAL EDUCATION (32 UNITS)

GE A The Arts (1 Course)*

GE B Humanistic Inquiry (2 Courses)

GE C Social Analysis (2 Courses)

GE D Life Sciences (1 Course)*

GE E Physical Sciences (1 Course)*

GE F Quantitative Reasoning (1 Course)*

GE G,H Global Perspectives (2 Courses)*

GESM General Education Seminar (1 Course)

WRITING (8 UNITS)

WRIT 150: Writing and Critical Reasoning

WRIT 340: Advanced Writing

ENGINEERING (58 UNITS)

CHE 120: Intro. to Chemical Engineering

CHE 305: Numerical & Statistical Analysis for Chemical Engineers

CHE 330: Chemical Engr. Thermodynamics

CHE 350: Intro. to Separation Processes

CHE 430: Principles & Applications of Systems Biology

CHE 442: Chemical Reactor Design

CHE 443: Viscous Flow

CHE 444aL: Chemical Engineering Lab

CHE 444bL: Chemical Engineering Lab

CHE 444cL: Chemical Engineering Lab

CHE 447: Heat and Mass Transfer in Chemical Engineering Processes

CHE 460L: Chem. Proc. Dynamics & Control

CHE 480: Chem. Process and Plant Design

CHE 485: Computer Aided Chemical Process Design

ENGR 102: Engineering Freshman Academy

CHE ELECTIVE

ENGINEERING ELECTIVE

STEM ELECTIVE

SPECIAL NOTES

GESM#: GESM can be taken from GE categories: A, B, C, or D. Courses listed in the guide are options for a four-year course plan.

GE: Engineering students are encouraged to satisfy GE G and GE H with a course that also satisfies a Core Literacy. GE H may be satisfied by AP/IB. Additionally, your GESM course should be taken in categories A, B, or C only. See page 17 for more information and consult your advisor for detailed assistance.

CHE ELECTIVE: An upper-division chemical engineering course.

CHEMISTRY ELECTIVE: CHEM 300, CHEM 322b, or CHEM 431

ENGINEERING ELECTIVE: An upper-division engineering course (subject to advisor approval).

STEM ELECTIVE: An upper-division elective course in math, science, or engineering (subject to advisor approval).

Emphasis Course Tracks for **Chemical Engineering**

The Chemical Engineering (CHE) curriculum covers foundational concepts for the first several semesters. Students following the standard program will have the opportunity to take more technical electives, while students following one of the emphasis course tracks will take specific courses towards that specialization.

Biological & Pharmaceutical Engineering

THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING
GE C 4	EMPHASIS ELECTIVE 4	GE B 4	GE C 4
BISC 320L (GE D)* *CHEM 105bL, 108, 115b* OR BISC 330L *CHEM 322a OR 325a* 4	CHE 442 *MATH 245 and CHE 443* 4	WRIT 340 *WRIT 150* 4	GE D** 4
CHEM 430 *CHEM 300L or 322aL, MATH 226, PHYS 151L* 4	EMPHASIS ELECTIVE 4	CHE 460L *CHE 120, (MATH 245)* 4	EMPHASIS ELECTIVE 4
CHE 443 *(CHE 350 or MATH 245)* 4	CHE 444cL *CHE 330, (CHE 447)* 2	CHE 485 *CHE 442, 443* 4	OPTIONAL ELECTIVE 4
CHE 444BL *CHE 330, (CHE 443)* 2	CHE 447 *MATH 245 and CHE 443* 4	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2

Energy & Sustainability

THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING
GE C 4	GE B 4	GE D** 4	GE C 4
CHEM 430 *CHEM 300L or 322aL, MATH 226, PHYS 151L* 4	EMPHASIS ELECTIVE 4	CHE 460L *CHE 120, (MATH 245)* 4	EMPHASIS ELECTIVE 4
CHE 443 *(CHE 350 or MATH 245)* 4	CHE 442 *MATH 245, CHE 443* 4	CHE 485 *CHE 442, CHE 443* 4	CHE 480 *CHE 485* 4
CHE 463 *MATH 245, PHYS 151, CHEM 105A* 4	CHE 447 *MATH 245, CHE 443* 4	CHE 450 *CHE 330* 4	WRIT 340 *WRIT 150* 4
CHE 444bL *CHE 330, (CHE 443)* 2	CHE 444cL *CHE 330, CHE 444bL, (CHE 447)* 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2

* *Satisfies GE D (life sciences requirement)*

** *Should a student not fulfill the GE D requirement through the completion of BISC 320, then they must enroll in an alternative GE D course.*

Petroleum & Subsurface Engineering

THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING
CHEM 430 *CHEM 300L or 322aL, MATH 226, PHYS 151L* 4	GE C 4	GE D** 4	GE B 4
CHE 443 *(CHE 350 or MATH 245)* 4	PTE 464L *PTE 463L* 4	CHE 485 *CHE 442, CHE 443* 4	GE C 4
PTE 461 4	CHE 442 *MATH 245, CHE 443* 4	CHE 460L *CHE 120, (MATH 245)* 4	CHE 480 *CHE 485* 4
PTE 463L *MATH 245, CHEM 105aLg or 115aLg, PHYS 151L* 4	CHE 447 *MATH 245, CHE 443* 4	PTE 465L *PTE 464L* 3	WRIT 340 *WRIT 150* 4
CHE 444bL *CHE 330, (CHE 443)* 2	CHE 444cL *CHE 330, CHE 444bL, (CHE 447)* 2	OPTIONAL ELECTIVE 3	OPTIONAL ELECTIVE 2

Materials Engineering

THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING
CHEM 430 *CHEM 300L or 322aL, MATH 226, PHYS 151L* 4	GE B 4	GE D** 4	GE C 4
CHE 443 *(CHE 350 or MATH 245)* 4	EMPHASIS ELECTIVE 4	CHE 485 *CHE 442, CHE 443* 4	EMPHASIS ELECTIVE 4
MASC 310 4	CHE 442 *MATH 245, CHE 443* 4	CHE 460L *CHE 120, (MATH 245)* 4	CHE 480 *CHE 485* 4
GE C 4	CHE 447 *MATH 245, CHE 443* 4	WRIT 340 *WRIT 150* 4	EMPHASIS ELECTIVE 4
CHE 444bL *CHE 330, (CHE 443)* 2	CHE 444cL *CHE 330, CHE 444bL, (CHE 447)* 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2

Civil & Environmental Engineering

Civil and Environmental Engineering (CEE) support the global economy, secure the health and security of diverse communities, and enhance environmental quality worldwide. They design, build and operate our nation's infrastructure — highways, bridges, wharf and harbor structures, industrial facilities — and address the challenges of ground water and air pollution as well as industrial and hazardous waste management. They monitor the quality of the air, water and land and enhance the protection of our environment.

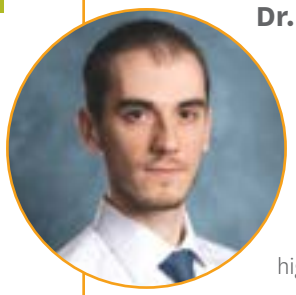
CIVIL ENGINEERING
- Structural & geotechnical engineering
- Construction
- Transportation
- Environmental
- Water resources

ENVIRONMENTAL ENGINEERING
- Safe drinking water
- Maintain air quality
- Protect the environment
- Impact energy systems

JOIN A STUDENT ORGANIZATION
- Construction Management Association of America (CMAA)
- American Society of Civil Engineers (ASCE)
- American Academy of Environmental Engineers and Scientists (AAEES)

POPULAR STUDY ABROAD LOCATIONS
- University of Queensland
- University of Auckland
- University of Edinburgh

RESEARCH



Dr. Bora Gencturk

RESEARCH FOCUS: Durability and extreme event resilience of reinforced concrete structures with an emphasis on application of high-performance materials

LAB: Structures and Materials Research Laboratory

RESEARCH PROJECTS: The laboratory is specially designed to conduct material and reduced-, large- and full-scale structural testing

COURSE: CE 334L (Mechanical Behavior of Materials)

FUN FACT: When he is not teaching or in the lab, Dr. Gencturk enjoys playing soccer

CAREERS

Junco Nelson

Class of 2020, Civil Engineering (Construction)

Project Engineer, Hathaway Dinwiddie Construction Company

As a general contractor, we work with clients, architects, and engineers to understand the design intent for a project, and then we manage subcontractors to perform that work. It takes a lot of collaboration, design coordination, logistics and trips to the field to see the work put into action.

My favorite part of my job is seeing the whole construction process, starting with drawings and ending up being installed in the field. It's really exciting to see the direct results of my hard work.

Advice? I learned valuable technical skills and networking connections by being very involved in civil engineering student organizations on campus. The Construction Management Association of America taught me so much about what I do at work now and helped me get an internship, which then led to my full-time position. The American Society of Civil Engineers also offered chances to interact with USC alumni in LA and helped me meet upper-division students who gave me valuable advice on how to grow my career.

Civil Engineering (Building Science)

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
CHEM 105aL (GE E)* 4	GESM (GE B)# 4	PHYS 152L *PHYS 151, (MATH 226)* 4	CE 309 *MATH 226g or 229, (CE 225)* 4	GE D* 4	CE 467L *CE 225* 4	CE 408 *(MATH 245)* 2	ADVANCED COMPUTING ELECTIVE 4
WRIT 150 4	GE C 4	ARCH 205aL *CE 106* 4	ARCH 205bL *ARCH 205aL* 4	ARCH 305aL *ARCH 205bL* 4	ARCH 305bL *ARCH 305aL* 4	ARCH 405aL *ARCH 305bL* 4	ARCH 405bL *ARCH 405aL* 4
MATH 126 or MATH 129* *MATH 125* 4	MATH 226 or MATH 229 *MATH 126 or 129* 4	MATH 245 *MATH 226 or 229* 4	GE B 4	CE 358 *CE 225* 4	CE 457 *CE 358L, CE 456* 4	WRIT 340 *WRIT 150* 4	GE C 4
CE 106 2	CE 108 2	CE 215 *PHYS 151Lg* 4	CE 225 *CE 215* 4	CE 456 *CE 225* 4	CE 458 *CE 358L* 4	CE 334L *CE 225 or AME 204, CHEM 105aLg, or 115aLg, PHYS 152L* 4	CE 460 4
ENGR 102 2	PHYS 151L (GE E) *MATH 125 or 126 or 226* 4	CE 119 *(CE 108, MATH 245)* 2	ARCH 214AG 3	OPTIONAL ELECTIVE 2	CE 330 *CE 119* 2	ARCH 214bg## 3	OPTIONAL ELECTIVE 2
OPTIONAL ELECTIVE 2							

MATHEMATICS (12 UNITS)

MATH 126 or MATH 129: Calculus II*
MATH 226 or MATH 229: Calculus III
MATH 245: Mathematics of Phys. and Engr.

PHYSICS (8 UNITS)

PHYS 151L: Mechanics and Thermodynamics
PHYS 152L: Electricity and Magnetism

OTHER SCIENCE (4 UNITS)

CHEM 105aL: General Chemistry*

GENERAL EDUCATION (32 UNITS)

GE A The Arts (1 Course)*
GE B Humanistic Inquiry (2 Courses)
GE C Social Analysis (2 Courses)
GE D Life Sciences (1 Course)*
GE E Physical Sciences (1 Course)*
GE F Quantitative Reasoning (1 Course)*
GE G,H Global Perspectives (2 Courses)*
GESM General Education Seminar (1 Course)

WRITING (8 UNITS)

WRIT 150: Writing and Critical Reasoning
WRIT 340: Advanced Writing

ARCHITECTURE (30 UNITS)

ARCH 214ag: World History of Architecture
ARCH 214b: History of Architecture
ARCH 205aL: Building Science I
ARCH 205bL: Building Science I
ARCH 305aL: Building Science II
ARCH 305bL: Building Science II
ARCH 405aL: Building Science III
ARCH 405bL: Building Science III

ENGINEERING (52 UNITS)

CE 106: Introduction to Civil Engineering
CE 108: Intro. to CE Computer Methods
CE 119: Probability Concepts and Civil Engineering
CE 215: Statics & Dynamics
CE 225: Mechanics of Deformable Bodies
CE 309: Fluid Mechanics
CE 330: Computational Methods in ENGR
CE 334L: Mechanical Behavior of Materials
CE 358: Elementary Theory of Structures
CE 408: Risk & Decision Analysis in Civil Engr.
CE 456: Structural Design I
CE 457: Structural Design II
CE 458: Computational Structural Analysis
CE 460: Construction Engineering
CE 467L: Geotechnical Engineering
ENGR 102: Engineering Freshman Academy

SPECIAL NOTES

*Courses with the * symbol may be satisfied with AP, IB or A-Level exams. See page 18 for more information.*

GE D (Biology Requirement): Must be an approved BISC course as listed in your STARS report.

GESM#: GESM can be taken from GE categories: A, B, C, or D. Courses listed in the guide are options for a four-year course plan.

GE: Engineering students are encouraged to satisfy GE G and GE H with a course that also satisfies a Core Literacy. GE H may be satisfied by AP/IB. Additionally, your GESM course should be taken in categories A, B, C, or D only. See page 17 for more information and consult your advisor for detailed assistance.

##: Completing ARCH 214bg will satisfy the GE A requirement.

OPTIONAL ELECTIVES: Consult with your academic advisor to explore optional elective courses. These courses are not required.

CE 215, 225, AND 309: Minimum grade of "C" is required.

ARCH 205ABL, ARCH 305ABL, AND ARCH 405ABL: Minimum grade of "C" is required in order to continue in the Building Science sequence.

ADVANCED COMPUTING ELECTIVES: CE 423 OR ENE 440

MATH 125: For students starting with Calculus 1, Advanced Computing Elective will be waived for your requirements.

Civil Engineering

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
CHEM 105aL (GE E)* 4	GESM (GE B)# 4	PHYS 152L *PHYS 151L, (MATH 226)* 4	CE 330 *CE 119* 2	CE 408 *(MATH 245)* 2	DESIGN ELECTIVE 4	WRIT 340 *WRIT 150* 4	ADVANCED COMPUTING ELECTIVE 4
WRIT 150 4	GE C 4	GE D* 4	CE 107 2	CE 334L *CE 225 or AME 204, CHEM 105aLg, or 115aLg, PHYS 152L* 4	CE 483 *(CE 215)* 4	DESIGN ELECTIVE 4	GE C 4
MATH 126 (GE F)* *MATH 125* 4	MATH 226 or MATH 229 *MATH 126 or 129* 4	MATH 245 *MATH 226 or 229* 4	GE A* 4	CE 358 *CE 225* 4	CE 451 *CE 309* 4	CE 471 *MATH 226g or 227 or 229* 4	CE 480 *CE 408 and either CE 456, 457, 476 or 485* 4
CE 106 2	PHYS 151L (GE E) *MATH 125 or 126 or 226* 4	CE 215 *PHYS 151Lg* 4	CE 225 *CE 215* 4	CE 456 *CE 225* 4	CE 467L *CE 225* 4	CE 453 *CHEM 105aLg or 115aL, (CE 309)* 4	CE ELECTIVE 2-4
ENGR 102 2	CE 108 2	CE 119 *(MATH 245)* 2	CE 309 *MATH 226g or 229, (CE 225)* 4	GE B 4	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 3-5
OPTIONAL ELECTIVE 2							

MATHEMATICS (12 UNITS)

MATH 126 or MATH 129: Calculus II*
MATH 226 or MATH 229: Calculus III
MATH 245: Mathematics of Phys. and Engr.

PHYSICS (8 UNITS)

PHYS 151L: Mechanics and Thermodynamics
PHYS 152L: Electricity and Magnetism

OTHER SCIENCE (8 UNITS)

CHEM 105aL: General Chemistry*

GENERAL EDUCATION (32 UNITS)

GE A The Arts (1 Course)*
GE B Humanistic Inquiry (2 Courses)
GE C Social Analysis (2 Courses)
GE D Life Sciences (1 Course)*
GE E Physical Sciences (1 Course)*
GE F Quantitative Reasoning (1 Course)*
GE G,H Global Perspectives (2 Courses)*
GESM General Education Seminar (1 Course)

WRITING (8 UNITS)

WRIT 150: Writing and Critical Reasoning
WRIT 340: Advanced Writing

ENGINEERING (72-74 UNITS)

CE 106: Introduction to Civil Engineering
CE 107: Intro. To Civil Engineering Graphics
CE 108: Intro. to CE Computer Methods
CE 119: Probability Concepts & Civil Engr
CE 215: Statics & Dynamics
CE 225: Mechanics of Deformable Bodies
CE 309: Fluid Mechanics
CE 330: Computational Methods in ENGR
CE 334L: Mechanical Behavior of Materials
CE 358: Elementary Theory of Structures
CE 408: Risk & Decision Analysis in Civil Engr.
CE 450: Coastal Engineering & Design
CE 451: Water Resources Coastal Engineering
CE 453: Water Quality Science & Engineering
CE 456: Structural Design I
CE 457: Structural Design 2
CE 458: Computational Structural Analysis
CE 459: Intro to Structural Dynamics
CE 460: Construction Engineering
CE 465: Water Supply & Sewerage System Design
CE 467L: Geotechnical Engineering
CE 471: Principles of Transportation Engr.
CE 480: Civil & Environmental Engineering Capstone Design
CE 482: Water & Wastewater Treatment Design
CE 483: Engineering Economics in Civil Engineering
ENGR 102: Engineering Freshman Academy
CE ELECTIVE
DESIGN ELECTIVES
ADVANCED COMPUTING ELECTIVES

SPECIAL NOTES

GE D (Biology Requirement): Must be an approved BISC course as listed in your STARS report.

*Courses with the * symbol may be satisfied with AP, IB or A-Level exams. See page 18 for more information.*

GESM#: GESM can be taken from GE categories: A, B, C, or D. Courses listed in the guide are options for a four-year course plan.

GE: Engineering students are encouraged to satisfy GE G and GE H with a course that also satisfies a Core Literacy. GE H may be satisfied by AP/IB. Additionally, your GESM course should be taken in categories A, B, or C only. See page 17 for more information and consult your advisor for detailed assistance.

OPTIONAL ELECTIVES: Consult with your academic advisor to explore optional elective courses. These courses are not required.

CE 215, 225, AND 309: Minimum grade of "C" is required.

CIVIL ENGINEERING ELECTIVE: Choose at least two units of upperdivision CE coursework that is not already required.

DESIGN ELECTIVES: Choose eight units from CE 450, 457, 465, 476, 482, or 485.

ADVANCED COMPUTING ELECTIVE: Choose one course from CE 423 or ENE 440.

MATH 125: For students starting with Calculus 1, the advanced computational course will be waived for your requirements.

Optional Course Tracks for **Civil & Environmental Engineering**

The Civil & Environmental Engineering (CEE) curriculum covers foundational concepts for the first several semesters. Students following the standard program will have the opportunity to take more technical electives, while students following one of the optional course tracks will take specific courses towards that specialization.

Construction

THIRD YEAR

FALL	SPRING
CE 408 *(MATH 245)* 2	DESIGN ELECTIVE 4
CE 334L *CE 225 or AME 204, CHEM 105aLg, or 115aLg, PHYS 152L* 4	CE 483 *CE 215* 2
CE 358 *CE 225* 4	CE 451 *CE 309* 4
CE 456 *CE 225* 4	CE 467L *CE 225* 4
GE B 4	OPTIONAL ELECTIVE 4

FOURTH YEAR

FALL	SPRING
GE C 4	WRIT 340 *WRIT 150* 4
CE 482 *CE 467L* 4	ADVANCED COMPUTING ELECTIVE 4
CE 471 *MATH 226g or 227 or 229* 4	CE 480 *CE 408 and either CE 456, 457, 476 or 485* 4
CE 460 4	CE ELECTIVE 2-4
OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2-5

Structural

THIRD YEAR

FALL	SPRING
CE 334L *CE 225 or AME 204, CHEM 105aLg, or 115aLg, PHYS 152L* 4	CE 457 *CE 358L, CE 456* 4
CE 358 *CE 225* 4	CE 483 *CE 215* 2
CE 456 *CE 225* 4	CE 458 *CE 358L* 4
GE C 4	CE 467L *CE 225* 4
OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 4

FOURTH YEAR

FALL	SPRING
CE 471 *MATH 226g or 227 or 229* 4	CE 460 4
CE 408 *(MATH 245)* 2	ADVANCED COMPUTING ELECTIVE 4
CE 459 *CE 458* 2	GE B 4
WRIT 340 *WRIT 150* 4	CE 480 *CE 408 and either CE 456, 457, 476 or 485* 4
CE 482 *CE 467L* 4	OPTIONAL ELECTIVE 2
OPTIONAL ELECTIVE 2	

Water Resources

THIRD YEAR

FALL	SPRING
CE 408 *(MATH 245)* 2	CE 465 *CE 453* 4
CE 334L *CE 225 or AME 204, CHEM 105aLg, or 115aLg, PHYS 152L* 4	CE 483 *CE 215* 2
CE 358 *CE 225* 4	CE 451 *CE 309* 4
CE 456 *CE 225* 4	CE 467L *CE 225* 4
CE 453 *CHEM 105aLg or 115aLg, (CE 309)* 4	OPTIONAL ELECTIVE 4

FOURTH YEAR

FALL	SPRING
CE ELECTIVE 4	ADVANCED COMPUTING ELECTIVE 4
CE 450 4	GE C 4
CE 471 *MATH 226g or 227 or 229* 4	CE 480 *CE 408 and either CE 456, 457, 476 or 485* 4
GE B 4	WRIT 340 *WRIT 150* 4
OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2

Environmental Engineering

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
CHEM 105aL (GE E)* 4	GESM (GE B)# 4	ENE 215 *PHYS 151Lg* 4	CE 330 *CE 119* 2	CHE 330 *(MATH 226)* 4	ENE 428 *MATH 245, PHYS 151, CHEM 105b* 4	GE B 4	ADVANCED COMPUTING ELECTIVE 4
WRIT 150 4	GE A* 4	MATH 245 *MATH 226 or 229* 4	ENE 200 *CHEM 105aL, PHYS 151L, MATH 126, (CHEM 105bL)* 4	CE 408 *(MATH 245)* 2	ENE 300 *ENE 410 or CE 309, MATH 245, PHYS 151Lg* 4	CE 410L *BISC 220, CHEM 105bL or 115bL* 4	ENE 426 4
MATH 126 (GE F)* *MATH 125* 4	MATH 226 OR MATH 229 *MATH 126 or 129* 4	PHYS 152L *PHYS 151L, (MATH 226)* 4	CE 309 *MATH 226 (CE 225)* 4	GE C OR ENE 415 4	CE 451 *ENE 410 or CE 309* 4	GE C OR ENE 415 4	CE 480 *CE 408 and either CE 456, 457, 476 or 485* 4
CE 110 2	PHYS 151L (GE E) *MATH 125 or 126 or 226* 4	CE 119 *(MATH 245)* 2	BISC 220L (GE D)* 4	WRIT 340 *WRIT 150* 4	CE 363L *ENE 200, CHEM 105aL* 4	CE 485 *CE 453, CE 363L* 4	OPTIONAL ELECTIVE 4
ENGR 102 2	CE 108 2	CE 215 *PHYS 151Lg* 4	GE B 4	ENE DESIGN ELECTIVE 4	CE 483 *CE 215* 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2
OPTIONAL ELECTIVE 2							

MATHEMATICS (12 UNITS)

MATH 126 or MATH 129: Calculus II*
MATH 226 or MATH 229: Calculus III
MATH 245: Mathematics of Phys. and Engr.

PHYSICS (8 UNITS)

PHYS 151L: Mechanics and Thermodynamics
PHYS 152L: Electricity and Magnetism

CHEMISTRY (4 UNITS)

CHEM 105aL: General Chemistry*

OTHER SCIENCE (4 UNITS)

BISC 220L: Cell Biology and Physiology*

GENERAL EDUCATION (32 UNITS)

GE A The Arts (1 Course)*
GE B Humanistic Inquiry (2 Courses)
GE C Social Analysis (2 Courses)
GE D Life Sciences (1 Course)*
GE E Physical Sciences (1 Course)*
GE F Quantitative Reasoning (1 Course)*
GE G,H Global Perspectives (2 Courses)*
GESM General Education Seminar (1 Course)

WRITING (8 UNITS)

WRIT 150: Writing and Critical Reasoning
WRIT 340: Advanced Writing

ENGINEERING (UNITS)

CHE 330: Chemical Engineering Thermodynamics
CE 108: Intro. to CE Computer Methods
CE 110: Intro. to Environmental Engineering
CE 119: Probability Concepts and Civil Engineering
CE 215: Statics and Dynamics
CE 309: Fluid Mechanics
CE 330: Computational Methods in Engineering
CE 363L: Water Chemistry and Analysis
CE 408: Risk & Decision Analysis in Civil ENGR
CE 410L: Introduction to Environmental Engineering Microbiology
CE 408: Risk & Decision Analysis in Civil ENGR
CE 423: Principles of Autonomy in Civil Engr
CE 450: Coastal Engineering & Design
CE 451: Water Resources Coastal Engineering
CE 480: Civil & Environmental ENGR Capstone Design
CE 483: Engineering Economics in Civil Engineering
CE 485: Wastewater Treatment Design
CHE 330: Chemical Engr. Thermodynamics
ENE 200: Environmental Engr. Principles
ENE 215: Energy Systems & Environmental Tradeoffs
ENE 300: Contaminant Transport in the Environment
ENE 410: Environmental Fluid Mechanics
ENE 415: Environmental Organic Chemistry
ENE 426: Particulate Air Pollutants: Properties Behavior/ Measurement
ENE 428: Air Pollution Fundamentals
ENE 440: Machine Learning for Climate Change and Sustainability
ENGR 102: Engineering Freshman Academy

SPECIAL NOTES

*Courses with the * symbol may be satisfied with AP, IB or A-Level exams. See page 18 for more information.*

GESM#: GESM can be taken from GE categories: A, B, C, or D. Courses listed in the guide are options for a four-year course plan.

GE: Engineering students are encouraged to satisfy GE G and GE H with a course that also satisfies a Core Literacy. GE H may be satisfied by AP/IB. Additionally, your GESM course should be taken in categories A, B, C, or D only. See page 17 for more information and consult your advisor for detailed assistance.

OPTIONAL ELECTIVES: Consult with your academic advisor to explore optional elective courses. These courses are not required.

CE 309: Minimum grade of "C" is required.

MATH 125: For students starting with Calculus 1, ENGR 102 will be waived for your requirements.

DESIGN ELECTIVES: CE 450 or CE 465

ADVANCED COMPUTING ELECTIVES: CE 423 OR ENE 440.

Civil Engineering (Environmental)

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
CHEM 105aL (GE E)* 4	GESM (GE B)# 4	ENE 215 *PHYS 151Lg* 4	CE 309 *MATH 226g or 229, (CE 225)* 4	GE C 4	CE 483 *CE 215* 2	CHE 330 *MATH 226* 4	CE 480 *CE 408, and either CE 456, 457, 476 or 485* 4
WRIT 150 4	GE A* 4	MATH 245 *MATH 226 or 229* 4	ENE 200 *CHEM 105aL, PHYS 151Lg, MATH 126g, (CHEM 105bL)* 4	CE 408 *(MATH 245)* 2	GE C 4	CE 485 *CE 453, CE 363L* 4	ADVANCED COMPUTING ELECTIVE 4
MATH 126 (GE F)* *MATH 125* 4	MATH 226 or MATH 229 *MATH 126 or 129* 4	PHYS 152L *PHYS 151L, (MATH 226)* 4	CE 330 *CE 119* 4	CE 358 *CE 225* 4	CE 467L *CE 225* 4	WRIT 340 *WRIT 150* 4	GE B 4
CE 110 2	PHYS 151L (GE E) *MATH 125 or 126 or 226* 4	CE 215 *PHYS 151Lg* 4	CE 225 *CE 215* 4	CE 456 *CE 225* 4	CE 451 *CE 309* 4	CE 410L *BISC 220Lg, CHEM 105bL or 115bL* 4	ENE 428 *MATH 245, PHYS 151L, CHEM 105bL* 4
ENGR 102 2	CE 108 2	CE 119 *(MATH 245)* 2	OPTIONAL ELECTIVE 2	BISC 220L (GE D)* 4	CE 363L *ENE 200, CHEM 105bL or 115bL* 4	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2
OPTIONAL ELECTIVE 2							

MATHEMATICS (12 UNITS)

MATH 126 or MATH 129: Calculus II*
MATH 226 or MATH 229: Calculus III
MATH 245: Mathematics of Phys. and Engr.

PHYSICS (8 UNITS)

PHYS 151L: Mechanics and Thermodynamics
PHYS 152L: Electricity and Magnetism

OTHER SCIENCE (8 UNITS)

CHEM 105aL: General Chemistry*
BISC 220L: Cell Biology and Physiology

GENERAL EDUCATION (32 UNITS)

GE A The Arts (1 Course)*
GE B Humanistic Inquiry (2 Courses)
GE C Social Analysis (2 Courses)
GE D Life Sciences (1 Course)*
GE E Physical Sciences (1 Course)*
GE F Quantitative Reasoning (1 Course)*
GE G,H Global Perspectives (2 Courses)*
GESM General Education Seminar (1 Course)

WRITING (8 UNITS)

WRIT 150: Writing and Critical Reasoning
WRIT 340: Advanced Writing

ENGINEERING (76 UNITS)

CHE 330: Chemical Engineering Thermodynamics
CE 108: Intro. to CE Computer Methods
CE 110: Intro. to Environmental Engineering
CE 119: Probability Concepts and Civil Engr
CE 215: Statics & Dynamics
CE 225: Mechanics of Deformable Bodies
CE 309: Fluid Mechanics
CE 330: Computational Methods in ENGR
CE 358: Elementary Theory of Structures
CE 363L: Water Chemistry and Analysis
CE 408: Risk & Decision Analysis in Civil Engr
CE 410L: Introduction to Environmental Engineering Microbiology
CE 423: Principles of Autonomy in Civil Engr
CE 451: Water Resources Coastal Engineering
CE 456: Structural Design 1
CE 467L: Geotechnical Engineering
CE 480: Civil & Environmental ENGR Capstone Design
CE 483: Engineering Economics in Civil Engr
CE 485: Wastewater Treatment Design
ENE 200: Environmental Engr. Principles
ENE 215: Energy Systems and Environmental Tradeoffs
ENE 428: Air Pollution Fundamentals
ENE 440: Machine Learning for Climate Change and Sustainability
ENGR 102: Engineering Freshman Academy

SPECIAL NOTES

*Courses with the * symbol may be satisfied with AP, IB or A-Level exams. See page 18 for more information.*

GESM#: GESM can be taken from GE categories: A, B, C, or D. Courses listed in the guide are options for a four-year course plan.

GE: Engineering students are encouraged to satisfy GE G and GE H with a course that also satisfies a Core Literacy. GE H may be satisfied by AP/IB. Additionally, your GESM course should be taken in categories A, B, or D only. See page 17 for more information and consult your advisor for detailed assistance.

OPTIONAL ELECTIVES: Consult with your academic advisor to explore optional elective courses. These courses are not required.

CE 215, 225, AND 309: Minimum grade of "C" is required.

MATH 125: For students starting with Calculus 1, ENGR 102 will be waived for your requirements.

ADVANCED COMPUTING ELECTIVES: CE 423 OR ENE 440.

Computer Science

Computer scientists and computer engineers design and implement efficient software and hardware solutions to computer-solvable problems. They are involved in the development of areas such as high-speed networks, multimedia and creative technologies, systems design, virtual reality, data science, artificial intelligence, machine learning, and robotics.

JOIN ONE OF COMPUTER SCIENCE'S STUDENT ORGANIZATIONS

Explore coding, artificial intelligence, hackathons, app development, virtual reality, and professional development through one of the many student orgs:

- Computing Machinery (ACM)
- CAIS++
- HackSC
- Project Athena
- Scope
- Women in Computing
- And many more!

INDUSTRY AFFILIATE PROGRAM

Program that fosters dynamic, mutually-beneficial, collaborative relationships between academic and industry leaders

- Google
- Lyft
- Didi
- Microsoft
- Mesmer
- PLUGandPLAy
- United Technologies Research Center
- Facebook

COMPUTER SCIENCE

RESEARCH

Dr. Swabha Swayamdipta

RESEARCH FOCUS: Language Models and Artificial Intelligence

LAB: DILL (Data, Interpretability, Language and Learning Lab)

RESEARCH PROJECT: Building language models which can reveal their hidden inputs.

COURSES: CSCI 444 (Natural Language Processing)

FUN FACT: I wrote my first piece of code in 4th grade, using LOGO to draw a square.

CAREERS

Jean Tu, **Class of 2018, Computer Science/ Business Administration, Minor in Applied Computer Security**

Software Engineer, Cisco Systems Inc

I create automation tools to help my team focus on fixing the vulnerabilities within our suite of products.

On a typical day I check to make sure that none of the automation tools are broken, holding meetings with my team members to understand the scope of the project as well as needed modifications and spending time with my friends from the Early in Career Network at Cisco.

I love that I have opportunities to solve problems that will help us remain compliant with our service-level agreements with our customers. I also have the wonderful opportunity to help lead the Early in Career Network within Cisco to help new grads form connections with other young professionals!

Course Tracks for **Computer Science (CSCI)**

The Computer Science (CSCI) program prepares students to work in the areas of software design, development, application, and maintenance. CSCI 102 is the introductory course for this program and the appropriate course for students with limited or no prior computer programming experience. Students who earn a 4 or 5 on the AP Computer Science A exam, or pass the CSCI 102 Challenge Exam, are able to begin in the next level of courses.

Computer Science — Begin with CSCI 103

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
WRIT 150 4	GESM (GE B)# 4	EE 109L *CSCI 102* 4	CSCI 310 or 353 or 356 or 360 4	GE A* 4	CSCI 310 or 353 or 356 or 360 4	WRIT 340 *WRIT 150* 4	GE D or E* 4
MATH 125 (GE F)* 4	MATH 129 or MATH 126* *MATH 125* 4	CSCI 270 *CSCI 104L, CSCI 170* 4	MATH 229 or MATH 226 *MATH 129 or 126* 4	MATH 225 or MATH 235 *MATH 126 or 129* 4	TECHNICAL ELECTIVE II 4	TECHNICAL ELECTIVE III 4	CSCI 350 *CSCI 201, CSCI 356* 4
CSCI 103L *CSCI 102* 4	CSCI 104 *CSCI 103L, CSCI 170* 4	CSCI 201L *CSCI 104L* 4	TECHNICAL ELECTIVE I 4	CSCI 310 or 353 or 356 or 360 4	EE 364 *MATH 225 or 245* or MATH 407 *MATH 226* 4	CSCI 310 or 353 or 356 or 360 4	CSCI 401 *CSCI 270, CSCI 310* or CSCI 404 *CSCI 201, CSCI 270* 4
CSCI 170 *CSCI 102* 4	GE C 4	GE C 4	BASIC SCIENCE (GE D OR E)* 4	BASIC SCIENCE II* 4	GE B 4	OPTIONAL ELECTIVE 6	ELECTIVE 6
ENGR 102 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2		

Computer Science — Begin with CSCI 102

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
WRIT 150 4	CSCI 103L *CSCI 102* 4	EE 109L *CSCI 102* 4	CSCI 270 *CSCI 104L, CSCI 170* 4	GE A* 4	CSCI 310 or 353 or 356 or 360 4	WRIT 340 *WRIT 150* 4	GE D OR E* 4
MATH 125 (GE F)* 4	CSCI 170 *CSCI 102* 4	CSCI 104 *CSCI 103L, CSCI 170* 4	CSCI 201L *CSCI 104L* 4	TECHNICAL ELECTIVE I 4	CSCI 310 or 353 or 356 or 360 4	TECHNICAL ELECTIVE II 4	CSCI 350 *CSCI 201, CSCI 356* 4
CSCI 102 2	MATH 129 or MATH 126* *MATH 125* 4	MATH 229 or MATH 226 *MATH 129 or 126* 4	MATH 225 or MATH 235 *MATH 126 or 129* 4	CSCI 310 or 353 or 356 or 360 4	EE 364 *MATH 225 OR 245* or MATH 407 *MATH 226* 4	CSCI 310 or 353 or 356 or 360 4	CSCI 401 *CSCI 270, CSCI 310* or CSCI 404 *CSCI 201, CSCI 270* 4
GE C 4	GESM (GE B)# 4	GE C 4	BASIC SCIENCE (GE D OR E)* 4	BASIC SCIENCE II* 4	GE B 4	OPTIONAL ELECTIVE 6	TECHNICAL ELECTIVE III 4
ENGR 102 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2		OPTIONAL ELECTIVE 2
OPTIONAL ELECTIVE 2							

Computer Science (CSCI) Please see previous page.

MATHEMATICS (16 UNITS)

MATH 125: Calculus I*

MATH 126 or 129: Calculus II*

MATH 226 or 229: Calculus III

MATH 225: Linear Algebra & Diff. Equations

or MATH 235: Linear Algebra & Applications

STATISTICS AND PROBABILITY (4 UNITS)

EE 364: Intro to Probability & Statistics

or MATH 407: Probability Theory

BASIC SCIENCE (8 UNITS)

One of the following science area course sequences:

- BISC 120L and BISC 220
- BISC 121 and BISC 221
- CHEM 105a and CHEM 105b
- CHEM 115a and CHEM 115b
- PHYS 151 and PHYS 152
- PHYS 161 and PHYS 162

GENERAL EDUCATION (24 UNITS)

GE A The Arts (1 Course)*

GE B Humanistic Inquiry (2 Courses)

GE C Social Analysis (2 Courses)

GE D Life Sciences (1 Course)*

GE E Physical Sciences (1 Course)*

GE F Quantitative Reasoning (1 Course)*

GE G,H Global Perspectives (2 Courses)*

GESM General Education Seminar (1 Course)

WRITING (8 UNITS)

WRIT 150: Writing and Critical Reasoning

WRIT 340: Advanced Writing

ENGINEERING (52 UNITS)

CSCI 102L: Fundamentals of Computation

CSCI 103L: Introduction to Programming

CSCI 104L: Data Structures & Object Oriented Design

CSCI 170: Discrete Methods in Comp. Science

CSCI 201L: Princ. of Software Development

CSCI 270: Intro. to Algorithms & Theory of Computing

CSCI 310: Intro. to Software Engineering

CSCI 350: Introduction to Operating Systems

CSCI 353: Introduction to Internetworking

CSCI 356: Introduction to Computer Systems

CSCI 360: Introduction to Artificial Intelligence

CSCI 401: Capstone: Design and Construction of Large Software Systems

or CSCI 404: Capstone: Creating Your High-Tech Startup

EE 109: Introduction to Embedded Systems

ENGR 102: Engineering Freshman Academy

TECHNICAL ELECTIVES (12 UNITS)

Take at least three 4-unit 300- or 400-level CSCI courses for a minimum of 12 units.

FREE ELECTIVE (4 UNITS)

SPECIAL NOTES

*Courses with the * symbol may be satisfied with AP, IB or A-Level exams. See page 18 for more information.*

GESM#: GESM can be taken from GE categories: A, B, C, or D. Courses listed in the guide are options for a four-year course plan. GE D may be satisfied with the Basic Science requirement.

GE: Engineering students are encouraged to satisfy GE G and GE H with a course that also satisfies a Core Literacy. GE H may be satisfied by AP/IB. Additionally, your GESM course should be taken in categories A, B, C, or D only. See page 17 for more information and consult your advisor for detailed assistance.

GRADE QUALIFIER: A grade of a C (2.0) or better is required for each of the core courses (CSCI 102, 103, 170, 104 & 201). Courses with a grade of C- or below must be repeated; courses may only be retaken once with department approval.

TECHNICAL ELECTIVES: Required CSCI major courses cannot double count for technical elective credit.

Computer Science Games Please see next page.

MATHEMATICS (12 UNITS)

MATH 125: Calculus I*

MATH 126 or 129: Calculus II*

MATH 225: Linear Algebra & Diff. Equations

or MATH 235: Linear Algebra & Applications

or EE 141L: Applied Linear Algebra for Engineering

PHYSICS (4 UNITS)

PHYS 151L: Mechanics and Thermodynamics*
or **PHYS 161L:** Advanced Principles of Physics I

GENERAL EDUCATION (24 UNITS)

GE A The Arts (1 Course)*

GE B Humanistic Inquiry (2 Courses)

GE C Social Analysis (2 Courses)

GE D Life Sciences (1 Course)*

GE E Physical Sciences (1 Course)*

GE F Quantitative Reasoning (1 Course)*

GE G,H Global Perspectives (2 Courses)*

GESM General Education Seminar (1 Course)

WRITING (8 UNITS)

WRIT 150: Writing and Critical Reasoning

WRIT 340: Advanced Writing

COMPUTER SCIENCE CORE (22 UNITS)

CSCI 102L: Fundamentals of Computation

CSCI 103L: Introduction to Programming

CSCI 104L: Data Structures & Object Oriented Design

CSCI 170: Discrete Methods in Comp. Science

CSCI 201L: Princ. of Software Development

CSCI 270: Intro. to Algorithms & Theory of Computing

COMPUTER SCIENCE CORE ELECTIVES (8 UNITS)

Choose at least 8 units of elective:

CSCI 350: Introduction to Operating Systems

CSCI 353: Introduction to Internetworking

CSCI 356: Intro. to Computer Systems

CSCI 360: Intro. to Artificial Intelligence

CSCI 420: Computer Graphics

GAME DEVELOPMENT CORE (16 UNITS)

TAC 380: Video Game Programming

CTIN 190: Intro to Interactive Entertainment

CTIN 488: Game Design Workshop

CTIN 489L: Intermediate Game Design Workshop

GAME DEVELOPMENT CORE ELECTIVES (6 UNITS)

Choose at least 6 units of elective from approved elective list: https://www.cs.usc.edu/academic-programs/undergrad/computer-science-games/

GAMES CAPSTONE (8 UNITS)

CSCI 491AL: Final Game Project

CSCI 491BL: Final Game Project

ENGINEERING (2 UNITS)

ENGR 102: Freshman Academy

FREE ELECTIVES (18 UNITS)

SPECIAL NOTES

*Courses with the * symbol may be satisfied with AP, IB or A-Level exams. See page 18 for more information.*

GESM#: GESM can be taken from GE categories: A, B, C, or D. Courses listed in the guide are options for a four-year course plan. GE D may be satisfied with the Basic Science requirement.

GE: Engineering students are encouraged to satisfy GE G and GE H with a course that also satisfies a Core Literacy. GE H may be satisfied by AP/IB. Additionally, your GESM course should be taken in categories A, B, C, or D only. See page 17 for more information and consult your advisor for detailed assistance.

GRADE QUALIFIER: A grade of a C (2.0) or better is required for each of the core courses (CSCI 103, 170, 104 & 201). Courses with a grade of C- or below must be repeated; courses may only be retaken once with department approval.

Course Tracks for **Computer Science Games (CSGA)**

The Computer Science Games degree (CSGA) offers technical and creative training for the video game industry. CSCI 102 is the introductory course for this program and the appropriate course for students with limited or no prior computer programming experience. Students who earn a 4 or 5 on the AP Computer Science A exam, or pass the CSCI 102 Challenge Exam, are able to begin in the next level of courses.

Computer Science Games — Begin with CSCI 103

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
CSCI 170 *CSCI 102* 4	PHYS 151L (GE E)* *MATH 125 or 126 or 226** 4	CSCI 201L *CSCI 104L* 4	CSCI 270 *CSCI 104L, CSCI 170* 4	CSCI ELECTIVE (350, 353, 356, 360 or 420) 4	WRIT 340 *WRIT 150* 4	CSCI 491aL 4	CSCI 491bL 4
CSCI 103L *CSCI 102* 4	CSCI 104L *CSCI 103L, CSCI 170* 4	MATH 129 or MATH 126* *MATH 125* 4	TAC 380 *CSCI 104* 4	GE A* 4	CSCI ELECTIVE (350, 353, 356, 360 or 420) 4	GE C 4	GE B 4
MATH 125 (GE F)* 4	CTIN 488 4	WRIT 150 4	FREE ELECTIVE 4	MATH 225 or MATH 235 *MATH 126 or 129* or EE 141L 4	GE C 4	FREE ELECTIVE 4	FREE ELECTIVE 4
CTIN 190 4	GESM (GE B)# 4	GAMES ELECTIVE 4	CTIN 489L *CTIN 488* 4	GE D* 4	OPTIONAL ELECTIVE 6	FREE ELECTIVE 4	FREE ELECTIVE 6
ENGR 102 2	GAMES ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 4	OPTIONAL ELECTIVE 2			

Computer Science Games

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
CSCI 102L 2	GESM (GE B)# 4	CSCI 104L *CSCI 103L, CSCI 170* 4	CSCI 270 *CSCI 104L, CSCI 170* 4	CSCI ELECTIVE (350, 353, 356, 360 or 420) 4	CSCI ELECTIVE (350, 353, 356, 360 or 420) 4	CSCI 491AL 4	CSCI 491bL 4
WRIT 150 4	MATH 125 (GE F)* 4	MATH 129 or MATH 126* *MATH 125* 4	TAC 380 *CSCI 104* 4	GE A* 4	GE C 4	GE C 4	GE B 4
CTIN 488 4	CSCI 170 *CSCI 102* 4	PHYS 151L (GE E)* *MATH 125 or 126 or 226* 4	CSCI 201L *CSCI 104L* 2	MATH 225 or MATH 235 *MATH 126 or 129* or EE 141L 4	FREE ELECTIVE 4	FREE ELECTIVE 4	WRIT 340 *WRIT 150* 4
CTIN 190 4	CSCI 103L *CSCI 102* 2	GAMES ELECTIVE 4	CTIN 489L *CTIN 488* 4	GE D* 4	OPTIONAL ELECTIVE 6	FREE ELECTIVE 4	FREE ELECTIVE 4
ENGR 102 2	GAMES ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2			FREE ELECTIVE 4
OPTIONAL ELECTIVE 2							

Course Tracks for **Computer Science Business Administration (CSBA)**

The Computer Science/Business Administration program (CSBA) allows students to study both computer science and business in four years, focusing on the core subjects of each discipline. CSCI 102 is the introductory course for this program and the appropriate course for students with limited or no prior computer programming experience. Students who earn a 4 or 5 on the AP Computer Science A exam, or pass the CSCI 102 Challenge Exam, are able to begin in the next level of courses.

Computer Science Business Administration— Begin with CSCI 103

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
GESM (GE B)# 4	CSCI 103L *CSCI 102* 4	WRIT 150 4	BASIC SCIENCE (GE D OR E)* 4	BUAD 310 or 312 or EE 364 *MATH 225* or MATH 407 *MATH 226* 4	CSCI ELECTIVE 4	WRIT 340 *WRIT 150* 4	GE E or D* 4
MATH 125 (GE F)* 4	MATH 126 or 129* *MATH 125* 4	MATH 225 or MATH 235 *MATH 126 or 129* or EE 141L 4	CSCI 201L *CSCI 104L* 4	BUAD 302 4	CSCI 310L *CSCI 201L* 4	BUSINESS ELECTIVE 2-4	GE B 4
GE C 4	ECON 351 *MATH 125 or 126 or 226* 4	ECON 352 *(ECON 351)* 4	CSCI 270 *CSCI 104L, CSCI 170* 4	GE A* 4	GE C 4	CSCI 401 *CSCI 270, CSCI 310* 4	BUAD 497 *ACCT 410X, BUAD 304, 307, ECON 351 & BUAD 310 OR 312 OR EE 364 OR MATH 407* 4
BUAD 304 4	CSCI 170 *CSCI 102* 4	CSCI 104L *CSCI 103L, CSCI 170* 4	ACCT 410x 4	BUAD 307 4	BUAD 306 4	BUAD 311 or BUAD 313 *BUAD 310 or BUAD 312 or EE 364 or MATH 407* 4	CSCI/BUSINESS ELECTIVE 4
ENGR 102 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2-4	OPTIONAL ELECTIVE 2

Computer Science Business Administration — Begin with CSCI 102

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
GE C 4	GESM (GE B)# 4	BUAD 302 4	CSCI 104L *CSCI 103L, CSCI 170* 4	BUAD 310 or 312 or EE 364 *MATH 225* or MATH 407 *MATH 226* 4	CSCI ELECTIVE 4	WRIT 340 *WRIT 150* 4	GE E or D* 4
MATH 125 (GE F)* 4	MATH 126 OR 129* *MATH 125* 4	ECON 352 *(ECON 351)* 4	MATH 225 or MATH 235 *MATH 126 or 129* or EE 141L 4	CSCI 201L *CSCI 104L* 4	CSCI 310L *CSCI 201L* 4	BUSINESS ELECTIVE 2-4	GE B 4
WRIT 150 4	ECON 351 *MATH 125 or 126 or 226* 4	CSCI 170 *CSCI 102* 4	BUAD 307 4	GE A* 4	GE C 4	CSCI 401 *CSCI 270, CSCI 310* 4	BUAD 497 *ACCT 410X, BUAD 304, 307, ECON 351 & BUAD 310 OR 312 OR EE 364 OR MATH 407* 4
BUAD 304 4	BASIC SCIENCE (GE D or E)* 4	CSCI 103L *CSCI 102* 4	ACCT 410x 4	CSCI 270 *CSCI 104L, CSCI 170* 4	BUAD 306 4	BUAD 311 or BUAD 313 *BUAD 310 or BUAD 312 or EE 364 or MATH 407* 4	CSCI/BUSINESS ELECTIVE 4
ENGR 102 2	CSCI 102L 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2-4	OPTIONAL ELECTIVE 2

Computer Science Business Administration Please see previous page.

MATHEMATICS (12 UNITS)
MATH 125: Calculus I*
MATH 126 or MATH 129: Calculus II*
MATH 225: Linear Algebra & Diff. Equations
or MATH 235: Linear Algebra & Applications
or EE 141: Applied Linear Algebra for Engineering

STATISTICS & PROBABILITY (4 UNITS)
BUAD 310: Applied Business Statistics
BUAD 312: Statistics and Data Science for Business
or EE 364: Intro to Probability & Statistics
or MATH 407: Probability Theory

BASIC SCIENCE (4 UNITS); Choose 1:
BISC 120L: General Biology
BISC 121: Advanced General Biology
CHEM 105a: General Chemistry
CHEM 115a: Advanced General Chemistry
PHYS 151: Fundamentals of Physics I
PHYS 161: Advanced Principles of Physics I

GENERAL EDUCATION (24 UNITS)
GE A The Arts (1 Course)*
GE B Humanistic Inquiry (2 Courses)
GE C Social Analysis (2 Courses)
GE D Life Sciences (1 Course)*
GE E Physical Sciences (1 Course)*
GE F Quantitative Reasoning (1 Course)*
GE G,H Global Perspectives (2 Courses)*
GESM General Education Seminar (1 Course)

WRITING (8 UNITS)
WRIT 150: Writing and Critical Reasoning
WRIT 340: Advanced Writing

BUSINESS REQUIREMENTS (36 UNITS)
ACCT 410X: Accounting for Non-Business Majors
BUAD 302: Communication Strategy in Business
BUAD 304: Organizational Behavior
BUAD 306: Business Finance
BUAD 307: Marketing Fundamentals
BUAD 311: Operations Management
or BUAD 313: Advanced Operations Management & Analytics
BUAD 497: Strategic Management
ECON 351: Microeconomics for Business
ECON 352: Macroeconomics for Business

COMPUTER SCIENCE (32 UNITS)
CSCI 102: Fundamentals of Computation
CSCI 103L: Introduction to Programming
CSCI 104L: Data Structures & Obj. Orient. Design
CSCI 170: Discrete Methods in Comp. Science
CSCI 201L: Princ. of Software Development
CSCI 270: Intro. to Algorithms & Theory of Comp.
CSCI 310: Intro. to Software Engineering
CSCI 401: Capstone: Design & Construction of Large Software Systems
or 404: Capstone: Creating Your High-Tech Startup
ENGR 102: Engineering Freshman Academy

TECHNICAL ELECTIVES (8 UNITS)
Computer Science Electives: Take at least one 4-unit 300- or 400-level CSCI course.
Business Electives: Take at least four units of 300- or 400-level courses offered by the Marshall School, specifically with a prefix of ACCT, BAEP, BUCO, BUAD, DSO, FBE, MKT, MOR, or RISK.

SPECIAL NOTES
Courses with a * symbol may be satisfied with AP, IB or A-Level exams. See page 18 for more information.

GESM#: GESM can be taken from GE categories: A, B, C, or D. Courses listed in the guide are options for a four-year course plan. GE D may be satisfied with the Basic Science requirement.

GE: Engineering students are encouraged to satisfy GE G and GE H with a course that also satisfies a Core Literacy. GE H may be satisfied by AP/IB. Additionally, your GESM course should be taken in categories A, B, C, or D only. See page 17 for more information and consult your advisor for detailed assistance.

GRADE QUALIFIER: A grade of a C (2.0) or better is required for each of the core courses (CSCI 103, 170, 104 & 201). Courses with a grade of C- or below must be repeated; courses may only be retaken once with department approval.

Computer Engineering & Computer Science (Embedded Systems) Please see next page.

MATHEMATICS (16 UNITS)
MATH 125: Calculus I*
MATH 126 or 129: Calculus II*
MATH 226 or 229: Calculus III
MATH 225: Linear Algebra & Diff. Equations
or MATH 235: Linear Algebra & Applications

STATISTICS AND PROBABILITY (4 UNITS)
EE 364: Intro to Probability & Statistics
or MATH 407: Probability Theory

PHYSICS (8 UNITS)
PHYS 151L: Mechanics and Thermodynamics*
PHYS 152L: Electricity and Magnetism*
or PHYS 161: Advanced Principles of Physics I
PHYS 162: Advanced Principles of Physics II
or PHYS 171: Applied Physics I: Mechanics
PHYS 172: Applied Physics II: Electricity, Magnetism and Optics

GENERAL EDUCATION (32 UNITS)
GE A The Arts (1 Course)*
GE B Humanistic Inquiry (2 Courses)
GE C Social Analysis (2 Courses)
GE D Life Sciences (1 Course)*
GE E Physical Sciences (1 Course)*
GE F Quantitative Reasoning (1 Course)*
GE G,H Global Perspectives (2 Courses)*
GESM General Education Seminar (1 Course)

WRITING (8 UNITS)
WRIT 150: Writing and Critical Reasoning
WRIT 340: Advanced Writing

ENGINEERING (64 UNITS)
CSCI 102: Fundamentals of Computation
CSCI 103L: Introduction to Programming
CSCI 104L: Data Structures & Object Oriented Design
CSCI 170: Discrete Methods in Comp. Science
CSCI 270: Introduction to Algorithms & Theory of Computing
CSCI 430: Introduction to Computer and Network Security
EE 109: Introduction to Embedded Systems
EE 202: Linear Circuits
EE 250: Distributed Systems for the Internet of Things
EE 301: Linear Systems
EE 354L: Introduction to Digital Circuits
EE 457: Computer Systems Organization
EE 459: Embedded Systems Design Laboratory
ENGR 102: Engineering Freshman Academy
TECHNICAL ELECTIVES (12 UNITS)
FREE ELECTIVES (4 UNITS)

SPECIAL NOTES
*Courses with the * symbol may be satisfied with AP, IB or A-Level exams. See page 18 for more information.*

GESM#: GESM can be taken from GE categories: A, B, C, or D. Courses listed in the guide are options for a four-year course plan. GE D may be satisfied with the Basic Science requirement.

GE: Engineering students are encouraged to satisfy GE G and GE H with a course that also satisfies a Core Literacy. GE H may be satisfied by AP/IB. Additionally, your GESM course should be taken in categories A, B, C, or D only. See page 17 for more information and consult your advisor for detailed assistance.

GRADE QUALIFIER: A grade of a C (2.0) or better is required for each of the core courses (CSCI 103, 170, 104 & 201). Courses with a grade of C- or below must be repeated; courses may only be retaken once with department approval.

SENIOR DESIGN PROJECT: EE 459L.

TECHNICAL ELECTIVES: See approved tech elective list on CS webpage.

Course Tracks for **Computer Engineering & Computer Science**

The Computer Engineering & Computer Science program (CECS) trains students to integrate hardware and software processes to design solutions to problems arising in complex domains such as computers (e.g, CPUs, GPUs, and NPUs), Internet of Things, domain-specific ML accelerators, consumer electronics, and autonomous robots and drones. CSCI 102 is the introductory course for this program and the appropriate course for students with limited or no prior computer programming experience. Students who earn a 4 or 5 on the AP Computer Science A exam, or pass the CSCI 102 Challenge Exam, are able to begin in the next level of courses.

Computer Engineering & Computer Science (Embedded Systems)— Begin with CS 103

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
WRIT 150 4	GESM (GE C)# 4	PHYS 151L *MATH 125 or 126 or 226 or 129 or 229* 4	PHYS 152L *PHYS 151, MATH 126 or 129, (MATH 226 or 229)* 4	EE 202 *MATH 245* 4	GE B 4	GE B 4	CSCI 430 *CSCI 201* 4
MATH 125 (GE F)* 4	MATH 126 or MATH 129* *MATH 125* 4	MATH 226 or MATH 229 *MATH 126 or 129* 4	MATH 225 or MATH 235 *MATH 126 or 129* 4	EE 364 *MATH 225 or 245* or MATH 407 *MATH 226* 4	TECHNICAL ELECTIVE I 4	TECHNICAL ELECTIVE II 4	GE C 4
CSCI 170 *CSCI 102* 4	CSCI 104L *CSCI 103L, CSCI 170* 4	GE A* 4	CSCI 270 *CSCI 104L, CSCI 170* 4	WRIT 340 *WRIT 150* 4	EE 301 *EE 141, EE 202* 4	TECHNICAL ELECTIVE III 4	EE 459 *EE 354* 4
CSCI 103 *CSCI 102* 4	EE 109L *(CSCI 102)* 4	EE 250 *EE 109* 4	EE 354L *EE 109* 4	EE 457 *EE 354* 4	GE D* 4	OPTIONAL ELECTIVE 2	FREE ELECTIVE 4
ENGR 102 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 4	OPTIONAL ELECTIVE 2

Computer Engineering & Computer Science (Embedded Systems) — Begin with CS 102

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
GE A 4	CSCI 170 *CSCI 102* 4	WRIT 150 4	PHYS 151L *MATH 125 or 126 or 226 or 129 or 229* 4	PHYS 152L* *PHYS 151, MATH 126 or 129* 4	GE D* 4	GE B 4	CSCI 430 *CSCI 201* 4
MATH 125 (GE F)* 4	CSCI 103 *CSCI 102* 4	MATH 226 or MATH 229 *MATH 126 or 129* 4	MATH 225 or MATH 235 *MATH 126 or 129* 4	EE 364 *MATH 225 or 245 or* MATH 407 *MATH 226* 4	TECHNICAL ELECTIVE I 4	TECHNICAL ELECTIVE II 4	GE C 4
GESM (GE C)# 4	MATH 126 or MATH 129* *MATH 125* 4	CSCI 104L *CSCI 103L, CSCI 170* 4	CSCI 270 *CSCI 104L, CSCI 170* 4	EE 202 *MATH 245* 4	EE 301 *EE 141, EE 202* 4	TECHNICAL ELECTIVE III 4	EE 459 *EE 354* 4
CSCI 102 2	EE 109L *(CSCI 102)* 4	EE 250 *EE 109* 4	EE 354L *EE 109* 4	EE 457 *EE 354* 4	GE B 4	WRIT340 *WRIT 150* 4	FREE ELECTIVE 4
ENGR 102 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2

Students in the Computer Engineering & Computer Science (CECS) major must declare their track no later than the start of their 5th semester. Students in the Computing Systems track are advised by the Computer Science department.

Students in the Embedded Systems track are advised by the Electrical and Computer Engineering department.

Computer Engineering & Computer Science (Computing Systems)— Begin with CS 103

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
WRIT 150 4	GESM (GE B)# 4	PHYS 151L* *MATH 125 or 126 or 226 or 129 or 229* 4	PHYS 152L* *PHYS 151, MATH 126 or 129, (MATH 226 or 229)* 4	GE A* 4	GE D* 4	GE B 4	EE 451L *CSCI 201L* or EE 454L *EE 354* or EE 477L *EE 354* 4
MATH 125 (GE F)* 4	MATH 126 or MATH 129* *MATH 125* 4	MATH 226 or MATH 229 *MATH 126 or 129* 4	MATH 225 or MATH 235 *MATH 126 or 129* 4	EE 364 *MATH 225 or 245* or MATH 407 *MATH 226* 4	TECHNICAL ELECTIVE I 4	TECHNICAL ELECTIVE II 4	GE C 4
CSCI 170 *CSCI 102* 4	CSCI 104L *CSCI 104L, CSCI 170* 4	GE C* 4	CSCI 270 *CSCI 104L, CSCI 170* 4	CSCI 201L *CSCI 104L* 4	CSCI 350 *CSCI 201, EE 354, or CSCI 356* 4	CSCI 353 *CSCI 201* 4	**CSCI 401** *CSCI 270 & CSCI 310* or CSCI 404 *CSCI 201, 270* or EE 459LX *EE 354* 4
CSCI 103 *CSCI 102* 4	EE 109L *CSCI 102* 4	EE 250 *EE 109* 4	EE 354L *EE 109* 4	EE 457 *EE 354* 4	OPTIONAL ELECTIVE 6	EE 451L *CSCI 201L* or EE 454L *EE 354* or EE 477L *EE 354* 4	WRIT 340 *WRIT 150* 4
ENGR 102 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2		OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2

Computer Engineering & Computer Science (Computing Systems) — Begin with CS 102

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
GE A* 4	CSCI 170 *CSCI 102* 4	WRIT 150 4	PHYS 151L* *MATH 125 or 126 or 226 or 129 or 229* 4	PHYS 152L *PHYS 151, MATH 126 or 129, (MATH 226 or 229)* 4	GE D* 4	GE B 4	EE 451L *CSCI 201L* or EE 454L *EE 354* or EE 477L *EE 354* 4
MATH 125 (GE F)* 4	CSCI 103 *CSCI 102* 4	MATH 226 or MATH 229 *MATH 126 or 129* 4	MATH 225 or MATH 235 *MATH 126 or 129* 4	EE 364 *MATH 225 or 245* or MATH 407 *MATH 226* 4	TECHNICAL ELECTIVE I 4	TECHNICAL ELECTIVE II 2-4	GE C 4
GESM (GE B)# 4	MATH 126 or MATH 129* *MATH 125* 4	CSCI 104L *CSCI 103L, CSCI 170* 4	CSCI 270 *CSCI 104L, CSCI 170* 4	CSCI 201L *CSCI 104L* 4	CSCI 350 *CSCI 201, EE 354, or CSCI 356* 4	CSCI 353 *CSCI 201* 4	**CSCI 401** *CSCI 270 & CSCI 310* or CSCI 404 *CSCI 201, 270* or EE 459LX 4
CSCI 102L 2	EE 109L *CSCI 102* 4	EE 250 *EE 109, CSCI 103* 4	EE 354L *EE 109* 4	EE 457 *EE 354* 4	GE C 4	EE 451L *CSCI 201L* or EE 454L *EE 354* or EE 477L *EE 354* 4	EE 354 4
ENGR 102 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2

Computer Engineering & Computer Science (Computing Systems) Please see previous page.

MATHEMATICS (16 UNITS)

MATH 125: Calculus I*
MATH 126 or 129: Calculus II*
MATH 226 or 229: Calculus III
MATH 225: Linear Algebra & Diff. Equations
or MATH 235: Linear Algebra & Applications

STATISTICS & PROBABILITY (4 UNITS)

EE 364: Intro to Probability & Statistics
or MATH 407: Probability Theory

PHYSICS (8 UNITS)

PHYS 151L: Mechanics and Thermodynamics*
PHYS 152L: Electricity and Magnetism*
or PHYS 161: Advanced Principles of Physics I
PHYS 162: Advanced Principles of Physics II

GENERAL EDUCATION (24 UNITS)

GE A The Arts (1 Course)*
GE B Humanistic Inquiry (2 Courses)
GE C Social Analysis (2 Courses)
GE D Life Sciences (1 Course)*
GE E Physical Sciences (1 Course)*
GE F Quantitative Reasoning (1 Course)*
GE G,H Global Perspectives (2 Courses)*
GESM General Education Seminar (1 Course)

WRITING (8 UNITS)

WRIT 150: Writing and Critical Reasoning
WRIT 340: Advanced Writing

CORE (34 UNITS)

CSCI 102
CSCI 103L
CSCI 104L
CSCI 170
CSCI 270
EE 109
EE 250
EE 354
EE 457

COMPUTING SYSTEMS TRACK (24 UNITS)

CSCI 201
CSCI 350
CSCI 353

TWO OF THE FOLLOWING COURSES:
EE 451
EE 454
EE 477

ONE OF THE FOLLOWING COURSES:
CSCI 401
CSCI 404
EE 459

TECHNICAL ELECTIVES (8 UNITS)

ENGINEERING (2 UNITS)

ENGR 102: Engineering Freshman Academy

SPECIAL NOTES

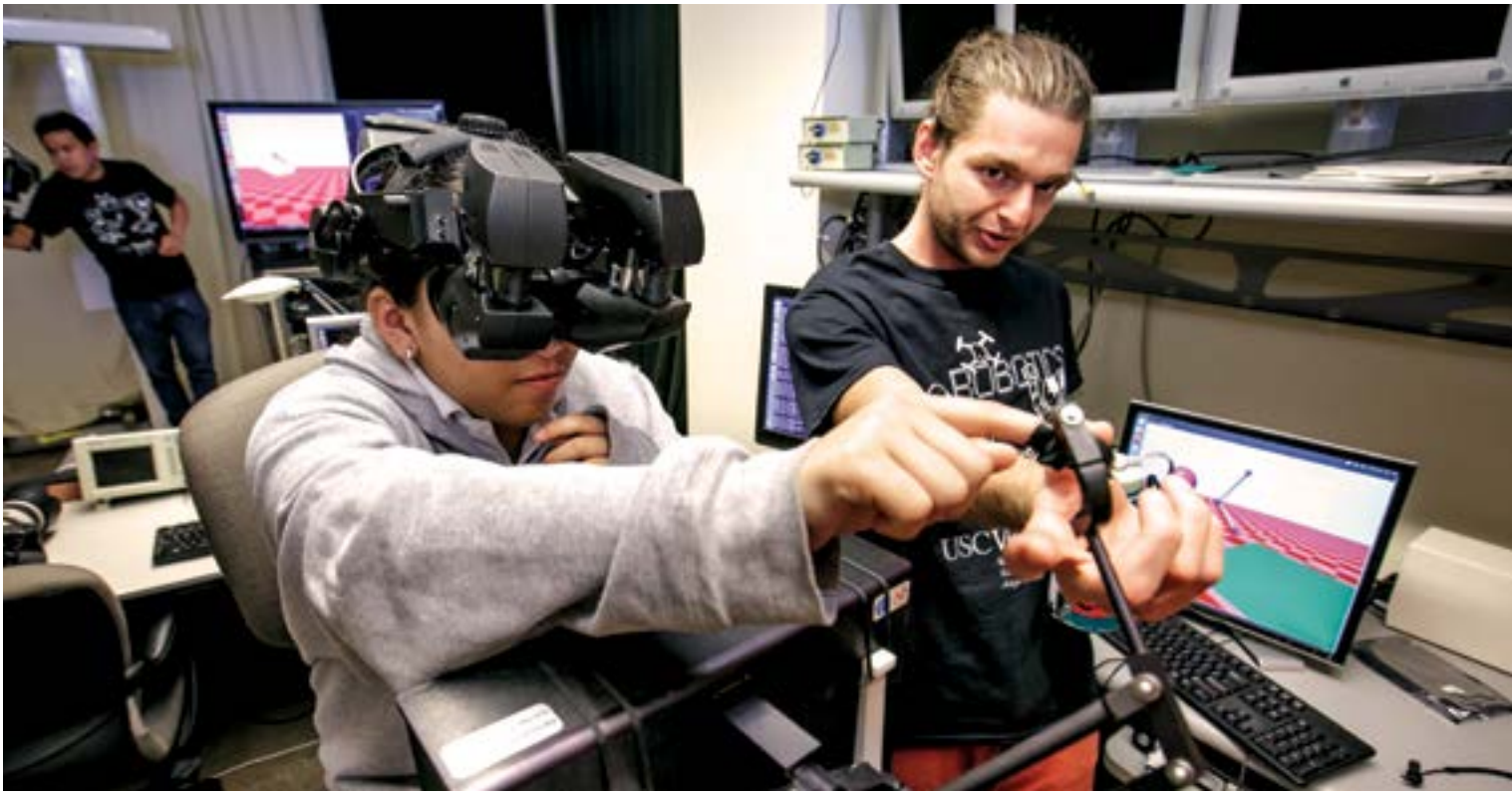
*Courses with the * symbol may be satisfied with AP, IB or A-Level exams. See page 18 for more information.*

GESM#: GESM can be taken from GE categories: A, B, C, or D. Courses listed in the guide are options for a four-year course plan.

GE: Engineering students are encouraged to satisfy GE G and GE H with a course that also satisfies a Core Literacy. GE H may be satisfied by AP/IB. Additionally, your GESM course should be taken in categories A, B, C, or D only. See page 17 for more information and consult your advisor for detailed assistance.

GRADE QUALIFIER: A grade of a C (2.0) or better is required for each of the core courses (CSCI 103, 170, 104 & 201). Courses with a grade of C- or below must be repeated; courses may only be retaken once with department approval.

TECHNICAL ELECTIVES: Refer to major (CECS) requirement webpage.



Electrical and Computer Engineering

Electrical and Computer Engineers are fundamental to the development of technological advances in the information age. We design and build devices and systems and develop theory, algorithms and software that operate in the real world. Applications include sensing, computing, robotics, autonomy, communications, networks, imaging, human health, biomedicine, entertainment, and scientific discovery.

PARTICIPATE IN RESEARCH OR JOIN ONE OF ECE'S STUDENT ORGANIZATIONS

- Opportunities for research during the academic year or over the summer in faculty labs
- The Institute of Electrical and Electronics Engineering (IEEE)
- Makers – An opportunity for team work on projects inspired by a community of USC students passionate about going beyond the textbook and turning wild ideas into real engineering projects.
- ECE students also act as electronics leads for the Liquid Propulsion Lab and the Rocket Propulsion Lab.

RESEARCH

Yasser Kahn

RESEARCH FOCUS: Wearable, implantable, and ingestible bioelectronics

LAB: Khan Lab

COURSES: EE 105

RESEARCH PROJECT:

We work on interdisciplinary projects at the intersection of engineering, medicine, and artificial intelligence. Our research focuses on additive manufacturing and hardware-enabled AI to create next-generation wearables, implantables, and ingestibles for precision health and psychiatric applications. Much like printing a newspaper, we use advanced printing techniques to fabricate transistors, sensors, and circuits. Our wearables are ultra-thin, flexible, and stretchable—designed to conform to the body seamlessly. In parallel, we are developing implantable brain interfaces and ingestible devices for the gut to monitor neural activity, neurochemical dynamics, and the bidirectional communication between the brain and the gut.

CAREERS

Hannah Rose,

Class of 2024,

B.S. Electrical and Computer Engineering; Minor in Entertainment Industry

Project Controls, Walt Disney Imagineering

Working in Project Controls, my job is to keep my project on schedule. Our projects at Walt Disney Imagineering often involve ambitious, creative ideas for new experiences that require a huge team of people to make possible. That means a lot of disciplines and activities to coordinate ahead of opening day! My job leans more on the Project Management side, but I am grateful for my background in electrical engineering as I am better equipped to communicate with the engineers on my team, read and understand their technical drawings, and understand their process enough to do my job.

Electrical and Computer Engineering

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
EE 141L 4	MATH 129* *MATH 125* 4	MATH 229 *MATH 129* 4	MATH 245 *MATH 229* 4	EE 364 *MATH 245* 4	EE ELECTIVE 4	EE ELECTIVE 4	CAPSTONE DESIGN ELECTIVE 4
EE 155L 4	PHYS 151L (GE E) *MATH 125* 4	PHYS 152L *PHYS 151 or 161* 4	PHYS 153L *PHYS 152/162* 4	EE 370L *PHYS 152/162* 4	EE 355 *EE 155L* 4	GE B 4	GE C 4
EE 105 4	EE 109L *EE 155L* 4	EE 250L *EE 109L* 4	EE 202L *MATH 245 Co-Req* 4	EE 301L *EE 141 & MATH 126/129* 4	EE 460 EE 141L & 155L 4	EE ELECTIVE 4	GENERAL ELECTIVE 4
WRIT 150 4	GESM (GE B)# 4	GE A* 4	GE C 4	WRIT 340 *WRIT 150* 4	GE D 4	GENERAL ELECTIVE 4	GENERAL ELECTIVE 2
ENGR 102 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2

MATHEMATICS (12 UNITS)

MATH 129: Calculus II*

MATH 229: Calculus III

MATH 245: Mathematics of Phys. and Engr. I

PHYSICS (12 UNITS)

PHYS 151L: Applied Physics I: Mechanics

PHYS 152L: Applied Physics II: Electricity, Magnetism and Optics

PHYS 153L: Applied Physics III: Topics in Modern Physics

GENERAL EDUCATION

GE A The Arts (1 Course)*
GE B Humanistic Inquiry (2 Courses)
GE C Social Analysis (2 Courses)
GE D Life Sciences (1 Course)*#
GE E Physical Sciences (1 Course)*
GE F Quantitative Reasoning (1 Course)*
GE G,H Global Perspectives (2 Courses)*
GESM General Education Seminar (1 Course)

WRITING (8 UNITS)

WRIT 150: Writing and Critical Reasoning

WRIT 340: Advanced Writing

ENGINEERING (62 UNITS)

EE 105L: Intro to Electrical Engineering##

EE 109L: Intro to Embedded Systems

EE 141L: Applied Linear Algebra for Engineering

EE 155L: Intro. to Comp. Programming for EE

EE 202L: Linear Circuits

EE 250L: Distributed Systems for the Internet of Things

EE 301L: Linear Systems

EE 370L: Electromagnetics for Engineering Systems

EE 355: Software Design for Engineers

EE 364: Intro to Probability & Statistics

EE 460: Machine Learning for Engineers

ENGR 102: Engineering Freshman Academy

EE ELECTIVES

CAPSTONE DESIGN ELECTIVE

OTHER COURSES (12 UNITS)

GENERAL ELECTIVES

SPECIAL NOTES

*Courses with the * symbol may be satisfied with AP, IB or A-Level exams. See page 18 for more information.*

GESM#: GESM can be taken from GE categories: A, B, C, or D. Courses listed in the guide are options for a four-year course plan.

GE: Engineering students are encouraged to satisfy GE G and GE H with a course that also satisfies a Core Literacy. GE H may be satisfied by AP/IB. Additionally, your GESM course should be taken in categories A, B, C, or D only. See page 17 for more information and consult your advisor for detailed assistance.

REQUIRED ELECTIVES: Required electives are needed to meet minimum unit requirement and can be met with AP/IB and transfer credit.

EE ELECTIVES: Minimum 16 units of advisor-approved, upper-division EE Electives, including the Capstone Design Elective.

CAPSTONE: Take one Capstone Course.

#GE D (Biology Requirement): Must be an approved BISC course as listed in your STARS report.

Electrical and Computer Engineering

In addition to studying a common core of subjects, students choose among three broad areas based on your individual interests.

- Computer Engineering: computer systems, computer networks, embedded systems, digital hardware, system-on-chip, and VLSI design.
- Signals, Systems and Learning: machine learning, signal processing, communications, autonomy and control, robotics.
- Circuits and Devices: integrated-circuit technology, mixed-signal electronics, micromechanical devices, power systems.

Your degree culminates in a Capstone Design Project or research-based Thesis that draws on everything you've learned at USC.

CORE CURRICULUM: Required courses

EE 105	EE 109L	EE 141L	EE 155L	EE 202L	EE 250L	EE 301	EE 370L	EE 355	EE 364	EE 460
4	*EE 155L* 4	4	4	*MATH 245 Co-Req* 4	*EE 109L* 4	*EE 202* 4	*PHYS 152/162* 4	*EE 155L* 4	*MATH 245* 4	EE 141L & 155L 4

EE ELECTIVES: Take minimum 16.0 units of advisor-approved, upper-division electives

COMPUTER ENGINEERING

EE 109L → EE 354L Intro to Digital Circuits 4	EE 355L → EE 451 Parallel and Distributed Computing 4
EE354L → EE 457 Computer System Organization 4	EE 450 Intro to Computer Networks 4
EE 354L → EE 250L Intro to System-on-Chip 4	EE 354L → EE 477L VLSI Design 4

SYSTEMS, SIGNALS, & LEARNING

EE 301 → EE 482 Linear Control Systems 4	EE 301 → EE 483 Digital Signal Processing 4
EE 301 → EE 467 Communication Systems 4	

CIRCUITS & DEVICES

PHYS 152 → EE 338 Physical Electronics 4	EE 202L EE 338 → EE 348L Electronic Circuits 4
EE 370 → EE 471 Applied Quantum Mechanics 4	EE 348 → EE 448L Communication Electronics 4
EE 354L → EE 477L VLSI Design 4	

CAPSTONE: Take 1 capstone course

EE 354L → EE 459L Embedded Systems Laboratory	EE 496 Capstone Design

Industrial & Systems Engineering

Industrial and systems engineers (ISE) work to improve processes, systems, and organizations. Industrial and systems engineering provides the skills and foundations needed to design, analyze, and optimize complex systems. Industrial and systems engineers are productivity catalysts, managing the combination of physical resources and human capital needed to produce and deliver valuable goods and services.

JOIN ISE'S PROFESSIONAL STUDENT ORGANIZATION

- Institute of Industrial and Systems Engineers (IISE)
- Pursue one of 6 Progressive Degree Programs to pursue your masters degree in conjunction with your bachelors
- Opportunities for research during the academic year or over the summer with faculty

POPULAR STUDY ABROAD LOCATIONS

- University of Auckland
- University of Melbourne
- National University of Singapore
- Hong Kong University of Science & Technology

RESEARCH

Dr. John Carlsson

AREA OF RESEARCH: Algorithms for solving problems in continuous location theory, including optimization problems with some kind of geographic element

My research is supported by DARPA, the Office of Naval Research, the Air Force Office of Scientific Research, the National Science Foundation, and the US Department of Transportation

COURSES: ISE 330 and ISE 331 (Introduction to Operations Research, Deterministic and Stochastic Models)

FUN FACT: I was a music major before falling in love with ISE

CAREERS

Ashley Morris

Class of 2016,
Industrial and Systems Engineering

Senior Associate, SAP GRC Advisory, KPMG

I'm a tech consultant, specializing in SAP, which is a system a lot of companies use worldwide (think Amazon, Google, and Under Armour!). My team identifies risks in our clients' business processes and technologies and helps them come up with solutions to prevent things from going wrong.

What do I love about my job? My manager, my team, the flexibility, the responsibility and freedom, the trust. Management supports me in taking ownership and starting initiatives to implement that change. They trust me to interact with clients who are levels above me or executing meetings how I see fit, so we can reach the finish line together successfully.

Advice? Do what brings you joy. Don't do something because you think you have to. You didn't get that internship? So what? Trust me. You'll end up employed.

Industrial and Systems Engineering

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
ENGR 102 2	ISE 150 4	ISE 220 *MATH 126* 4	ISE 225 *ISE 220* 4	ISE 315L *ISE 225* 4	ISE 435L *ISE 150, ISE 225* 4	ISE 350 *ISE 225* 4	ISE 410 *ISE 330* 4
ISE 105 2	PHYS 151L (GE E) *MATH 125* 4	CHEM 150aL or MASC 110* 4	ISE 330 *MATH 225* 4	ISE 370L 4	ISE 495a *ISE 225, ISE 382* 2	ISE 495b *ISE 315, ISE 370, ISE 435* 2	ISE 440 4
MATH 125 (GE F)* 4	MATH 126 or MATH 129* *MATH 125* 4	MATH 225 *MATH 126* 4	GE B 4	ISE 382 3	PHYS 152L *PHYS 151, MATH 126* 4	WRIT 340 *WRIT 150* 4	ISE APPROVED ELECTIVE 4
WRIT 150 4	GESM (GE A)# 4	GE C 4	FREE ELECTIVE 4	MATH 226 OR MATH 229 4	GE C 4	ISE APPROVED ELECTIVE 4	BIOLOGY ELECTIVE (GE D)* 4
GE B 4	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	OPTIONAL ELECTIVE 2	FREE ELECTIVE 4	OPTIONAL ELECTIVE 4	OPTIONAL ELECTIVE 2

MATHEMATICS (16 UNITS)

MATH 125: Calculus I*
MATH 126 or 129: Calculus II*
MATH 226 or 229: Calculus III
MATH 225: Linear Algebra and Diff. Equations

SCIENCE (16 UNITS)

CHEM 105aL: General Chemistry*
or MASC 110L: Materials Science
PHYS 151L: Mechanics and Thermodynamics
PHYS 152L: Electricity and Magnetism
BIOLOGY ELECTIVE

GENERAL EDUCATION (20 UNITS)

GE A The Arts (1 Course)*
GE B Humanistic Inquiry (2 Courses)
GE C Social Analysis (2 Courses)
GE D Life Sciences (1 Course)*
GE E Physical Sciences (1 Course)*
GE F Quantitative Reasoning (1 Course)*
GE G,H Global Perspectives (2 Courses)*
GESM General Education Seminar (1 Course)

WRITING (8 UNITS)

WRIT 150: Writing and Critical Reasoning
WRIT 340: Advanced Writing

ENGINEERING (60 UNITS)

ENGR 102: Engineering Freshman Academy
ISE 105: Intro. to Industrial and Systems Engineering
ISE 150: Solving Engineering Problems using Python
ISE 220: Foundations of Probability Modeling
ISE 225: Foundations of Data Analysis
ISE 315L: Engineering Project Management
ISE 330: Optimization
ISE 350: Principles and Practices of Systems Engineering
ISE 370L: Human Factors in Work and Systems Design
ISE 382: Database Systems: Storage and Retrieval using SQL
ISE 410: Planning and Scheduling for Production and Supply Chains
ISE 435L: Discrete Systems Simulation
ISE 440: Socio-Technical Systems and Work Organizations
ISE 495a: Senior Design Project
ISE 495b: Senior Design Project
ISE APPROVED ELECTIVES

FREE ELECTIVES (8 UNITS)

SPECIAL NOTES

*Courses with the * symbol may be satisfied with AP, IB or A-Level exams. See page 18 for more information.*

GESM#: GESM can be taken from GE categories: A, B, C, or D. Courses listed in the guide are options for a four-year course plan.

GE: ISE students satisfy GE D with BIOLOGY ELECTIVE, GE E with CHEM 105aL or PHYS 151L, and GE F with MATH 125. Engineering students are encouraged to satisfy GE G and GE H with a course that also satisfies a Core Literacy. GE H may be satisfied by AP/IB. Additionally, your GESM course should be taken in categories A, B, C, or D only. See page 17 for more information and consult your advisor for detailed assistance.

ISE APPROVED ELECTIVES: 8 units of coursework. See academic advisor for approved list of courses.

BIOLOGY ELECTIVE: Select one among BISC 103, BISC 104, BISC 230, or HBIO 205.

Artificial Intelligence for Business

Marshall School of Business & Viterbi School of Engineering

The Bachelor of Science degree program in Artificial Intelligence for Business is offered jointly by the Marshall School of Business and the Viterbi School of Engineering. It offers qualified students an opportunity to gain an educational foundation in both areas.

The degree cannot be combined as an additional major in either Business Administration or Engineering and is administered by the Marshall School of Business. For more information, please see the course catalog on degree requirements or contact the Marshall School of Business.

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	SPRING	FALL	SPRING	FALL	SPRING	FALL	SPRING
BUAD 312** 4	CSCI 103 *CSCI 102* 4	BUAD 280 4	BUAD 307 4	ECON 352X 4	BUAD 497 4	EIS 370 4	GE A-E 4
MATH 125 (GE F)* 4	BUAD 304 4	BUAD 302 4	BUAD 313** 4	BUAD 281 4	CSCI 445 OR ITP 449 OR ITP 459 4	CSCI 445 OR ITP 449 OR ITP 459 2-4	GE A-E 4
WRIT 150 4	ECON 351X *MATH 125 or 126 or 226* 4	DSCI 281 4	BUAD 306 OR 308 4	CSCI 360 4	GE A-E 4	GE A-E WITH GE G 4	GE A-E WITH GE H 4
BUAD 112** 4	GESM 4	CSCI 170 4	CSCI 104 4	DSO 429 4	WRIT 340 4	GE A-E 4	FREE ELECTIVE 6
CSCI 102 2	OPTIONAL ELECTIVE: BUAD 104 2	ITP 115 OR 116 2		MOR 458 2	DSO 488* 2		

MATHEMATICS

MATH 125: Calculus I

ECON 352X: Microeconomics for Business

GENERAL EDUCATION

GE A The Arts (1 Course)*

GE B Humanistic Inquiry (2 Courses)

GE C Social Analysis (2 Courses)

GE D Life Sciences (1 Course)*

GE E Physical Sciences (1 Course)*

GE F Quantitative Reasoning (1 Course)*

GE G,H Global Perspectives (2 Courses)*

GESM General Education Seminar (1 Course)

WRITING

WRIT 150: Writing and Critical Reasoning

WRIT 340: Advanced Writing

EIS 370: Ethical Issues in Artificial Intelligence

ENGINEERING

CSCI 102: Fundamentals of Computation

CSCI 103: Intro to Programming

CSCI 104: Data Structures & Object Oriented Design

CSCI 170: Discrete Methods in Computer Science

CSCI 360: Intro to Artificial Intelligence

CSCI 445: Intro to Robotics

BUSINESS

BUAD 312: Statistics & Data Science

BUAD 304: Organizational Behavior & Leadership

BUAD 302: Communication Strategy in Business

BUAD 280: Financial Accounting

BUAD 307: Marketing Fundamentals

BUAD 313: Advanced Operations Management

BUAD 306 OR 308: Business Finance or Advanced Finance

BUAD 281: Managerial Accounting

DSO 429*: Digital Transformation of Business: AI & Smart Contacts

MOR 458:** Technology Strategy: The Case of AI

DSO 488*: Hands-on AI for Business

SPECIAL NOTES

*Must be taken this semester

**Cohort BUAI section

Progressive Degree Program

There are countless ways to get to your end goal. Being a student organization president, completing an internship, or studying abroad are all experiences that prepare you for life after college. Are you thinking about grad school? The Progressive Degree Program (PDP) is a great way to earn a master's degree from the Viterbi School of Engineering in as little as one additional year.

RACHEL.AMIR CHATMAN, *Biomedical Engineering, Class of 2024*

Viterbi Involvement

- Viterbi Scholar & Fellow
- Women in Science & Engineering Professional Program Fellow
- National Society of Black Engineers (NSBE)
- Associated Students of Biomedical Engineering
- Research Assistant, Gait Rehabilitation & Motor Learning Lab
- Research Assistant, USC Institute for Technological & Medical Systems
- Research Assistant, Biomechanics Research Lab
- Summer Internship, Medtronic

USC Involvement

- Presidential Scholar
- Black Alumni Association Scholar
- Shift SC, Founding Member & President
- President, National Pan-Hellenic Council
- Treasurer, Delta Sigma Theta Sorority, Inc.
- Mentor, Trojan Scholars Society

" The second I got to campus I hit the ground running, taking in all that Viterbi had to offer. I now am so grateful for all the opportunities I was afforded, which have instilled in me the confidence to pursue and thrive in the service-oriented career I have been working toward my whole life. "

THE PROGRESSIVE DEGREE PROGRAM

PDP is an accelerated master's degree open to USC's academically outstanding undergraduate juniors and seniors. It allows you to begin taking master's-level courses while finishing the final semesters of your bachelor's degree. Blending your undergraduate and graduate degrees via PDP may reduce the number of graduate units required for degree completion.

Interested in two different fields of engineering? Consider pursuing one field as a B.S. and one as an M.S. through PDP.

For more information:

https://viterbigradadmission.usc.edu/progressive-degree-program/
Viterbi.pdp@usc.edu

PDP Eligibility Requirements:

64+

completed undergraduate units, excluding AP, IB and A-level exams

3.2+

GPA

Viterbi

CAREER CONNECTIONS

PREPARE AND CONNECT

Viterbi Career Connections is committed to helping you achieve your future career goals through recruitment, self-evaluation exercises, goal setting, employer and alumni events, career exploration, and career advising. Start planning for graduate school or your future career path by focusing on what you can do now to achieve future success.

RECRUITMENT EVENTS

Connect with employers and alumni in person and virtually through: career expos, in-person and virtual networking events, Career Gateway job portal, company info sessions, and on-campus recruiting.

PROFESSIONAL DEVELOPMENT

Participate in staff-led workshops, company site visits, mock interview days, and other events to get career and internship ready.

1:1 CAREER ADVISING

Our career advisors provide advising sessions tailored to meet individual student needs and goals. Meet with a career advisor to discuss your internship search strategy or interview skills, evaluate a job offer, review your resume, and more. Drop-in hours available.

VMOCK RESUMÉ

VMock is an online platform that uses data science, machine learning and artificial intelligence to provide you with instant personalized feedback to assist you with optimizing your resume.

GETTING INVOLVED IN YOUR FIRST YEAR

1 **Viterbi Career & Internship Expos**

Take place every fall and spring semester. Students connect with employers seeking new hires.

2 **Information Sessions (Trojan Talks)**

A great way to explore an organization or an industry! Employers provide insights on their organization, open positions, and organizational culture.

3 **Online Job and Internship Boards**

- Viterbi Career Gateway features jobs, events, internships, and services exclusive to engineering students.
- ConnectSC features jobs, events and services for the entire USC population.
- Handshake connects you to additional internship, part-time, and full-time opportunities.

4 **On-Campus Interviews**

Interview with your potential employer from the convenience of campus.

CLASS OF 2023, BY THE NUMBERS

71%
percent of BS students headed toward employment after graduation

25%
percent of BS students headed toward grad school after graduation

9,250
number of opportunities posted in Viterbi Career Gateway

USC Viterbi School of Engineering

100
number of employer info sessions

139
number of employers registered for Career & Internship Expos

154
number of career readiness activities and recruitment events

$98,300
*Average salary of Viterbi Class of 2023 (Bachelors)**

**Knowledge rate n=173*

Preparing for the Future

The undergraduate class of 2023 let us know where they are headed, and it's quite literally all over the map! About 71 percent of our graduating class entered industry, while another 25 percent goes on to graduate studies. The remaining 4 percent of students pursued service opportunities, their own ventures, or military service.

TAYLOR WHITE, *Biomedical (Mechanical) Engineering, Senior, Class of 2023*

Viterbi Involvement

- Progressive Degree Program (PDP), Medical Device and Diagnostic Engineering
- WiSE Research Fellow
- Valero Lab Research Intern
- Viterbi Career Ambassador
- Alfred Mann Institute Intern
- Valero Lab Research Intern

USC Involvement

- Alpha Delta Pi Sorority
- PwC Cyber Risk and Regulatory Consulting Intern

"The Viterbi Career Center has helped me develop and transition from a student to a professional. With their guidance I have been able to gain exposure into an industry I hope to join after graduation through networking, interview preparation, and resume critiques. Everyone at the career center has a true passion for seeing the students of Viterbi succeed, and I am fortunate enough to have had the pleasure of working with them."

RESUMES IN SEPTEMBER

About 70% of summer internship recruitment takes place in the fall semester. Have your resume ready by mid-September.

VITERBI ONLINE JOB & INTERNSHIP BOARD

This platform allows you to search for engineering internships, co-ops, and full-time opportunities, get information for recruitment and networking events, RSVP for professional development workshops, access resources and more! (viterbicareers.usc.edu/gateway)

VIKTORIIA KURILENKO, *Civil Engineering, Class of 2025*

Viterbi Involvement

- ASCE Concrete Canoe Design Team
- Women in Engineering, Leadership Board

USC Involvement

- Slavic Club
- Minor, Public Relations

"Being a Viterbi Ambassador has been a very rewarding experience that has allowed me to engage with students, faculty, and employers with school-wide events and promote various career opportunities. I enjoy being a part of a team that is passionate about helping USC students succeed in their professional development. During my time here, I've gained invaluable skills in communication, leadership, and networking, which have played a crucial role in helping me navigate my own career journey."

VITERBI CAREER CONNECTIONS

Viterbi Career Connections offers professional development support to prepare you for learning experiences with employers as an intern or trainee during your undergraduate career.

CO-OPS

Co-ops offer more in-depth and extensive work experience over the course of two semesters, usually lasting a minimum six months.

INTERNSHIPS

Typically offered over the summer, internships are 8 to 12 weeks of on-the-job training in a particular field.

Viterbi
INFO & RESOURCES

VITERBI ADMISSION & STUDENT ENGAGEMENT (VASE) OFFICES:

ACADEMIC SERVICES
OHE 106

CAREER CONNECTIONS
RTH 218

CENTER FOR ENGINEERING DIVERSITY
RTH 210

STUDENT ENGAGEMENT
OHE 106

VITERBI STUDENT WELLNESS
RTH 110

WOMEN IN ENGINEERING
RTH 210

ACADEMIC CALENDAR 2025-2026

FALL SEMESTER 2025

MOVE-IN	AUGUST 20
CLASSES BEGIN	AUGUST 25
LABOR DAY	SEPTEMBER 1
FALL RECESS	OCTOBER 9-10
VETERANS DAY	NOVEMBER 11
THANKSGIVING HOLIDAY	NOVEMBER 26-30
CLASSES END	DECEMBER 5
STUDY DAYS	DECEMBER 6-9
EXAMS	DECEMBER 10-17
WINTER RECESS	DECEMBER 18-JANUARY 11

SPRING SEMESTER 2026

CLASSES BEGIN	JANUARY 12
MARTIN LUTHER KING'S BIRTHDAY	JANUARY 19
PRESIDENT'S DAY	FEBRUARY 16
SPRING RECESS	MARCH 15-22
CLASSES END	MAY 1
STUDY DAYS	MAY 2-5
EXAMS	MAY 6-13
COMMENCEMENT	MAY 15

FREE ELECTIVES (18 units)