

**JACOBS SCHOOL OF ENGINEERING** 

Aiiso Yufeng Li Family Department of Chemical and Nano Engineering

# **Chemical Engineering NanoEngineering**



Undergraduate Student Handbook 2025-2026

# Welcome to the Aiiso Yufeng Li Family Department of Chemical and Nano Engineering Department!

Congratulations on being admitted to UC San Diego and to the Aiiso Yufeng Li Family Department of Chemical and Nano Engineering in the Jacobs School of Engineering. This student handbook will help you become familiar with your program, requirements, expectations, and processes. For any additional questions or concerns, please contact the Department of Chemical and Nano Engineering Student Affairs Office. For detailed department information, please visit the department website: <a href="https://cne.ucsd.edu">https://cne.ucsd.edu</a>.

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# **Academic Advising at UC San Diego**

At UC San Diego, you will work with a team of advisors. You will have a College advisor, plus a major advisor. What's the difference?

# College academic advisors

Undergraduate students work with <u>college academic advisors</u> who are specialists in the general education requirements of their respective colleges and university requirements. You'll meet with your college academic advisors to develop and discuss your overall academic objectives and all related requirements. Transfer students should connect with their College regarding questions related to IGETC, UC Reciprocity, and general transfer status. All new students will need to attend pre-enrollment advising sessions and orientation through your College.

Colleges: Revelle, John Muir, Thurgood Marshall, Earl Warren, Eleanor Roosevelt, Sixth, Seventh, Eighth.

# **Department academic advisors**

Undergraduate students also work with <u>department/program academic advisors</u> who are specialists in major and minor requirements. They support you with information about academic enrichment; career, graduate, and professional school planning; and student research opportunities.

Major advisors (also called department/program advisors) work in academic departments, programs, Schools, and Institutes. Their titles may be academic advisor, program coordinator, student affairs officer, or undergraduate program manager based on the structure of their home unit. If you change your major, you will work with a new major advisor in that new home department/program.

### **What Department Advisors Do**

A major/department advisor can:	A major/department advisor cannot:
Help plan your major courses for next quarter. Later in your first year at UC San Diego, they can review your long-term plan for graduation.	Tell you how a course satisfies general education requirements. (Your College Advisor is there for those questions.)
Manage enrollment (waitlists, pre-authorization requests, prerequisite clearance) for courses in their department.	Guarantee the likelihood you will get off a course wait-list.
Give you information about department/School resources like tutoring, student organizations, and honors opportunities.	Advise on your financial aid information. (That's protected by the Financial Aid & Scholarships office.)

Connect you with faculty in the department/program with expertise in the subject area who can help with graduate school preparation and career guidance.	Tell your professor to change your grade. (Instructors have sole discretion for grading.)
Guide you through the petition process if you have transfer coursework.	Decide how your coursework will be transferrable for credit at UC San Diego (that's Admissions) or if it is equivalent to a major course (faculty decide that).
Refer and connect you to others across campus.	Fix everything in a one-stop-shop. Or find you parking. (Sorry. We want it too.)

# **Meet Your Department Advisors!**

The Aiiso Yufeng Li Family Department of Chemical and Nano Engineering offers advising through the Virtual Advising Center (VAC), drop-in advising, and scheduled appointments.



### Jackie Tam - Chemical and Nano Engineering Student Affairs Manager

Jackie Tam oversees student advising, instruction, course support/hiring, admissions, and PhD financial support, for the Ajiso, Yufeng Li Family Department of Chemical and Nano Engineering.



### Sharon Harvey - Chemical and Nano Engineering Undergraduate Advisor

Sharon first joined UC San Diego as an undergraduate advisor in 2006. She later moved to Melbourne, Australia and continued working with undergraduate students at Monash University as an academic affairs officer. After eventually moving back to the US, she returned to where her advising career first began in the Jacobs School of Engineering. Sharon loves being a part of the CNE Department student affairs team.

### **Online Advising**

Submit your question via the Virtual Advising Center at <u>vac.ucsd.edu</u>. The VAC is used instead of email for all academic advising inquiries at UC San Diego.

# **Drop-In Advising Hours**

Available in-person on Tuesday mornings from 10:00 - 11:00 in SME 241B, no appointment necessary.

Drop-in advising hours are subject to availability and can be canceled on occasion due to scheduling conflicts.

### **Appointments**

Available via Zoom or in-person. Advising appointments are typically 15-30 minutes depending on the nature of the appointment request. Please submit your appointment request using the <u>google form</u> founding on our CNE advising webpage and use your ucsd.edu email address. After filling out the form, we will contact you via the VAC with your appointment time and location or Zoom link (if applicable).

## **Physical Location**

Our offices are located in the Structural and Materials Engineering (SME) building on the UC San Diego campus. The SME building can be found on the East side of campus, near Warren College. SME 241B is located on the second floor of SME at the corner of Voigt Drive and Matthews Lane. You can access the building using the entrance on the north side of the building, the south entrance doors are locked at all times. Once inside SME, take the stairs to the second floor and turn right. The second door on the left leads to a sitting area, you can wait there until an advisor is available.

Additionally, students are encouraged to visit our department FAQ page.

# **Virtual Advising Center (VAC)**

The Virtual Advising Center (VAC) is a central resource available to all students to connect with their academic advisors. Log in at <u>vac.ucsd.edu</u>.

The VAC is not a chatbot or Al! There is a real, hardworking human advisor reviewing your record and answering every individual question. VAC messages are answered during working hours. Please be patient - advisors answer these as soon as possible, but it may take a couple of business days depending on the staffing in that unit.

# **CNE Program Curriculum**

# **CE 25 Chemical Engineering Curriculum**

The Chemical Engineering curriculum is designed to be completed in four years for incoming first-year students. For transfer students the curriculum will take two-years to complete. All CENG core courses are taught **only once per year** and are scheduled to be consistent with the curriculum shown below. Students are encouraged to follow the curriculum as designed. Every course (except CENG 4, and CENG 199) **must be taken for a letter grade**.

The curriculum includes Technical Electives or an Area of Specialization. These courses help prepare graduates for a career in various fields, rather than solely traditional chemical and petrochemical industries. Students can select three electives in different areas, to enhance breadth of knowledge. However, selecting three courses within the same discipline allows for an area of specialization. All eligible courses are pre-approved.

To receive a B.S. in Chemical Engineering, students must complete 139 units (plus the college general education requirements). The unit breakdown is as follows:

- General education requirement (varied units) Intended to fulfill the general education requirements (G.E.) from respective College.
- Basic sciences and mathematics (fifty-four units) Includes twenty-four units of mathematics, fourteen units of physics, and sixteen units of chemistry.
- Chemistry core (twelve units) Three advanced chemistry electives must be selected from among the pre-approved courses.
- Chemical engineering core (thirty-three units) Covers chemical process modeling, solution thermodynamics, transport phenomena, chemical reaction engineering, process control, and unit operations.
- Process laboratory and design (sixteen units) This requirement is crucial to fulfilling the
  Chemical Engineering Program (B.S.) goals by providing hands-on and experiential instruction in
  the areas of project design, unit operations, hazards analysis, ethics, and economic analysis.
- **General engineering (twelve units)** Covers basics in computer programming, probability and statistics, and instrumentation.
- Electives in an area of specialization (twelve units) Electives are intended to broaden and
  enhance professional goals. They may be chosen to achieve either breadth or depth in one's
  education. All electives must be upper-division courses in engineering and are pre-approved.

# **Incoming Chemical Engineering First-Year Curriculum Plan**

All courses are 4-units unless stated below

FIRST YEAR		
Fall	Winter	Spring
CENG 4 (1 unit)	CHEM 6B	CHEM 6C
CENG 15	MATH 20B	CHEM 7L
CHEM 6A	PHYS 2A	MATH 20C
MATH 20A	G.E.	PHYS 2B
	SECOND YEAR	
Fall	Winter	Spring
<b>CENG 100</b>	<b>CENG 102</b>	<b>CENG 113</b>
MATH 18	MATH 20D	MATH 20E
PHYS 2C + 2CL (2-units)	Adv. Chem. (1)	Adv. Chem. (2)
G.E.	G.E.	G.E.
	THIRD YEAR	
Fall	Winter	Spring
CENG 101A	CENG 101B	CENG 101C
<b>CENG 170</b>	<b>CENG 114</b>	A.S./T.E. (1)
Adv. Chem. (3)	G.E.	G.E.
G.E.		
FOURTH YEAR		
Fall	Winter	Spring
CENG 120	CENG 124A	CENG 124B
CENG 122	CENG 176A	CENG 176B
A.S./T.E. (2)	A.S./T.E. (3)	G.E.
G.E.	G.E.	

# **Incoming Chemical Engineering Transfer Curriculum Plans**

# Two-Year Plan

FIRST YEAR @ UC SAN DIEGO		
Fall	Winter	Spring
CENG 4 (1-unit)	CENG 15	CENG 101C
<b>CENG 100</b>	CENG 101B	CENG 113
CENG 101A	<b>CENG 102</b>	<b>CENG 170</b>
MATH 20E	<b>CENG 114</b>	Adv. Chem. (1)
G.E.		G.E.

SECOND YEAR @ UC SAN DIEGO		
Fall	Winter	Spring
<b>CENG 120</b>	CENG 124A	CENG 124B
<b>CENG 122</b>	CENG 176A	CENG 176B
Adv. Chem. (2)	Adv. Chem. (3)	G.E.
A.S./T.E. (1)	A.S./T.E. (2)	A.S./T.E. (3)

The following courses are also required for all Chemical Engineering transfer students as a major requirement and to move forward in the major:

MATH: MATH 20A-E, 18. CHEMISTRY: CHEM 6A-C, 7L PHYSICS: PHYS 2A-C, CL

# All CE 25 course plans:

**CENG 4:** This course should be taken in the first Fall Quarter. Students will not graduate without taking CENG 4.

**CENG 15:** Offered in the Fall and may be offered in the Winter Quarter. If you cannot register for CENG 15 in the Fall, you may enroll in CENG 15 in the Winter.

**Chemistry Core:** Must be selected from CHEM 41A-C, 130, 131, 132, 114A (or BIBC 100), 114B (or BIBC 102), 120A, 120B.

**Area of Specialization/ Technical Electives (A.S./T.E.)**: Electives are intended to broaden and enhance professional goals. They must be upper-division courses in engineering. Pre-approved list.

G.E. Courses: This requirement varies by college and must be discussed with your college advisor.

# **Required Upper Division Classes**

- CENG 100: Material & Energy Balances
- CENG 101A-C: Introductory Fluid Mechanics; Heat Transfer; Mass Transfer
- CENG 102: Chemical Engineering Thermodynamics
- CENG 113: Chemical Reaction Engineering
- CENG 114: Probability & Statistical Methods for Engineers
- CENG 120: Chemical Process Dynamics & Control
- CENG 122: Separation Processes
- CENG 124A+B: Chemical Plant & Process Design I & II
- CENG 170: Experimental Methods for Chemical Engineers Process
- CENG 176A+B: Chemical Engineering Process Lab I & II
- 3 <u>Technical Electives</u>

# **NA 25 NanoEngineering Curriculum**

The NanoEngineering curriculum is designed to be completed in four years for incoming first-year students. For transfer students the curriculum will take two-years to complete. All NANO courses are taught **only once per year** and are scheduled to be consistent with the curriculum below. Every course (except NANO 4 and NANO 199) **must be taken for a letter grade**. To graduate, students must maintain an overall GPA of at least 2.0 and the department requires at least a C- grade in each major core course.

The curriculum includes five Nano elective courses. Students can select any available upper division non-core Nano classes to meet this requirement.

To receive a B.S. in NanoEngineering, students must complete 137 units (plus the College general education requirements). The unit breakdown is as follows:

- **General education requirements (varied units)** Intended to fulfill the general education requirements (G.E.) from the respective College.
- Basic sciences and mathematics (sixty units) Includes twenty-four units of mathematics, sixteen units of physics, sixteen units of chemistry, and four units of biology.
- Engineering Preparation (twelve units) Covers basics in computer programming, circuit analysis, and circuits lab.
- Nanoengineering core (forty-five units) 3 one-unit courses and eleven four-unit core courses.
- Nanoengineering electives (twenty units) Must be chosen from among the upper-division NANO courses offered by the department, or a NANO graduate course that has been approved by a student petition.

### Incoming NanoEngineering First-Year Curriculum Plan

All courses are 4-units unless stated below

FIRST YEAR			
Fall	Winter	Spring	
NANO 4 (1 unit)*	NANO 11*	CHEM 6C	
NANO 15*	CHEM 6B	MATH 18	
CHEM 6A	MATH 20B	MATH 20C	
MATH 20A	G.E.	PHYS 2A	
G.E.			
SECOND YEAR			
Fall	Winter	Spring	
NANO 20L (1 unit)	NANO 104	NANO 108	
NANO 102	BILD 1	PHYS 2D	
CHEM 7L	MATH 20E	G.E.	
MATH 20D	PHYS 2C	G.E.	

PHYS 2B				
THIRD YEAR				
Fall	Winter	Spring		
NANO 110*	NANO 107	NANO 112		
NE Elective (1)	NANO 111*	NANO 115L		
G.E.	NANO 117	NE Elective (2)		
G.E.	G.E.	G.E.		
	FOURTH YEAR			
Fall	Winter	Spring		
NANO 119 (1 unit)	NANO 120A	NANO 120B		
NANO 148*	NE Elective (4)	NE Elective (5)		
NE Elective (3)	G.E.	G.E.		
G.E.	G.E.	G.E.		

# **Incoming NanoEngineering Transfer Curriculum Plan**

FIRST YEAR @ UC SAN DIEGO		
Fall	Winter	Spring
NANO 4 (1 unit)	NANO 11	NANO 108
NANO 15	NANO 104	NANO 115L
NANO 20L (1 unit)	NANO 107	BILD 1
NANO 102	G.E.	NE Elective (1)
MATH 20E		
SECON	ID YEAR @ UC SAN D	IEGO
Fall	Winter	Spring
NANO 110	NANO 117	NANO 112
NANO 111*	NANO 120A	NANO 120B
NANO 119 (1 unit)	NE Elective (2)	NE Elective (4)
NANO 148	NE Elective (3)	NE Elective (5)

The following courses are also required for all NanoEngineering transfer students as a major requirement and to move forward in the major:

**MATH**: MATH 20A-E, 18. **CHEMISTRY**: CHEM 6A-C, 7L

PHYSICS: PHYS 2A-D

**BILD**: BILD

# All NA 25 course plans:

**NANO 4:** This course should be taken in the first Fall Quarter. Students will not graduate without taking NANO 4.

**NANO 15:** This cours will be offered in Fall Quarter and may be offered in Winter. If you cannot register for NANO 15 in the fall, you may enroll in NANO 15 in the winter.

NanoEngineering Electives: This requirement must be chosen from among the pre-approved upper-division NANO courses (NANO 100 - 199) offered by the department. Students may petition to use other upper division courses, such as CENG, BENG, MAE, ECE, to fulfill the NanoEngineering Elective requirements, but petitions must be submitted prior to enrollment as approval is not guaranteed. Petitions for potential elective courses can be submitted up to two guarters in advance.

**G.E. Courses:** This requirement varies by college and must be discussed with your college advisor.

# **Required Upper Division Classes**

- NANO 102: Foundations in NanoEngineering: Chemical Principles
- NANO 104: Foundations in NanoEngineering: Physical Properties
- NANO 107: Electronic Devices & Circuits for NanoEngineers
- NANO 108: Materials Science Engineering
- NANO 110: Molecular Modeling of Nanoscale
- NANO 111: Characterization of NanoEngineering Systems
- NANO 112: Synthesis & Fabrication of NanoEngineering
- NANO 115L: NanoEngineering Lab
- NANO 117: Multiscale Transport
- NANO 119 (1 unit): NanoEngineering System Design Seminar
- NANO 120 A+B: NanoEngineering System Design I & II
- NANO 148: Thermodynamics of Materials
- 5 NanoEngineering Electives

# Other Degree Requirements for CE 25 and NA 25 majors

### **Residency Requirement**

While our majors do not have specific residency requirements, all core CENG or NANO courses must be taken at UC San Diego.

### **Letter Grades (not P/NP)**

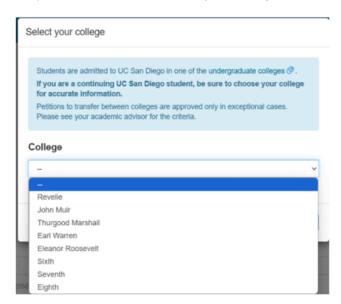
All courses required for the CENG or NANO major must be taken for a letter grade and have a C- or above as a passing grade in order to count towards the major requirements. This includes all lower division MATH, CHEM, PHYS and BILD courses that are part of the major requirements. CENG technical electives and NANO electives must also be taken for a letter grade.

# **Academic Planning**

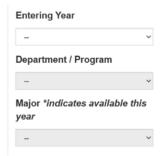
# **Quarter-by-quarter Academic Plans**

Quarter-by-quarter templates for every College and major are available at plans.ucsd.edu.

Visit plans.ucsd.edu, and choose your College from the dropdown menu.



Then choose your Entering Year (when you started at UCSD), Department/Program, and specific Major.



The default view is the Four Year Plan. Transfer students should click on the Transfer Plan tab:



These plans are meant to be used as guides and will need to be modified based on your individual academic background. Read the **Comments** section carefully.

To begin building your own personalized long-term plan, download the <u>Academic Planning Worksheet.</u> and save a copy. Copy/paste from plans.ucsd.edu into the Google sheet.

# **General Catalog**

The online <u>General Catalog</u> displays course descriptions and prerequisites for every class as UC San Diego. It also details the policies and requirements of all degrees.

Use the Catalog to understand more about the courses you will take and your degree requirements.

# **Your Academic History**

Your Academic History is your unofficial transcript at UC San Diego. It includes all courses you have taken.

Check your Academic History on My TritonLink carefully to verify that all your courses transferred.

- Your Academic History will show all transferable credit (<u>AP exams</u>, <u>IB exams</u>, A-Level exams, and transfer courses including dual enrollment).
- If you received directly equivalent (approximated) credit for a transfer course that is equal to a
  course at UC San Diego, you will see the transfer approximation for the UC San Diego course in
  the far right column. In the example below, ECON 121 at San Diego Mesa College is equal to
  UCSD's ECON 1.



- If you received credit for a course that does not have a UC San Diego course listed in the far right column, that course is counting for degree credit, but it is not directly equal to a UC San Diego course. In the example above, ASTR 101 at San Diego Mesa College has transferred for 4.5 units at UCSD, but it is not directly equivalent to a specific class at UCSD. If you need the class to count for a specific course for a major requirement, you will need to submit a petition to that department. On an upcoming page of this Canvas course you will learn about transfer course petitions.
- You must submit all <u>official AP scores</u>, <u>official IB scores</u>, official A-Level transcripts, and official transcripts from every institution you attended. If you have done that by July 1 and if it is after

August 12 but some of your courses are not showing on your Academic History or appear to be inaccurately posted, you must contact UC San Diego Admissions (Log in at <a href="https://beatriton.ucsd.edu/apply/status">https://beatriton.ucsd.edu/apply/status</a>).

# **Degree Audit**

The Degree Audit shows your progress towards completion of your degree. Academic advisors use the degree audit to verify your graduation, so it is important this is updated and accurate.

### How to run a degree audit:

Run a new degree audit when you log in to MyTritonLink to get an updated look at your progress toward your degree. UC San Diego's degree audit system provides results in real time, so you can run an audit when you change your classes or once grades are posted. The degree audit is accessible 24 hours a day, 7 days a week.

- Login here.
- The "Request an Audit" page appears, listing your currently active degree program(s). Click Run Declared Programs.
- Your new degree audit is now ready to view. Click the View Audit link.
- Degree Audits are a snapshot in time of your progress towards degree completion. Run a new audit to show your latest academic information. If you would like to save an audit, save a PDF to your computer.
- See screenshots and details at <u>How to Run a Degree Audit (PDF)</u>.

# How to read your degree audit

- See a <u>degree audit example (PDF)</u> with notes describing each section.
  - = completed requirements (T-indicates transfer course).
  - = missing/incomplete requirements.
  - = work in progress (WIP).

### Questions/Concerns with your audit

- Major requirements: contact your major advisor via the <u>VAC</u>.
- College/university requirements: contact your College advisor via the <u>VAC</u>.

# **Schedule of Classes & Planned Course Offerings**

### Schedule of Classes

The Schedule of Classes is where you will find the dates and times for courses in any given quarter. The image below shows what the Schedule of Classes looks like. You can read more about <u>How to Use the Schedule of Classes</u> on TritonLink.

### Schedule of Classes Select search term : Fall Quarter 2024 Find Courses: by department by code(s) by section id(s) by professor or title if you select the list you may use your keyboard to jump to a subject code select one or more subjects AIP - Academic Internship Program AAS - African American Studies only show me courses which match any of the AWP - Analytical Writing Program following criteria ANES - Anesthesiology ANBI - Anthro/Biological Anthropology lower division: ✓ 1-99 □ 87&90s □ 99s ANAR - Anthropological Archaeology upper division: ✓ 100-198 ☐ 195s □ 199s ANTH - Anthropology □ 200-297 □ 298s □ 299s ANSC - Anthropology/Sociocultural □ 300+ **400+** □ 500+ AESE - ArchitectureBsdEntrpSystmsEngr AAPI - Asian Am & Pacific Islander St ASTR - Astronomy and Astrophysics (optional) the course meets primarily on AUD - Audiology ✓ Mon ✓ Tue ✓ Wed ✓ Thurs ✓ Fri ✓ Sat BENG - Bioengineering **BNFO** - Bioinformatics Start Time 12:00 V AM V End Time: 12:00 V AM V BIEB - Biol/Ecology, Behavior, & Evol BICD - Biol/Genetics, Cellular & Develop BIPN - Biology/Animal Physiol&Neurosc BIBC - Biology/Biochemistry BGGN - Biology/Grad/General ☐ only show sections with seats available Search ☐ show the results in a popup window

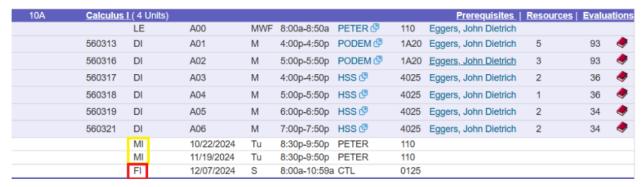
### **Discussion Sections**

Some courses have required discussion sections (shown in the Schedule of Classes as DI), in addition to the lecture (shown as LE). A discussion section is an additional hour of instruction or review led by a Teaching Assistant. A class may have multiple discussion section options but students only enroll in one and must attend that section only.



### Midterm and Final Exams

Most courses at UC San Diego also have a scheduled final exam time during finals week (week 11). Final exams (shown as FI on the Schedule of Classes) are often at a different time than the course met during the quarter. Some courses also have midterm exams (shown as MI), and these may be outside of regular meeting times. The midterm (if applicable) and final exam time can be found below the lecture and discussion times in the Schedule of Classes. You are responsible for ensuring you have no midterm exam or final exam time conflicts.



### **Planned Course Offerings**

The Schedule of Classes only lists courses available for the upcoming quarter. However, most departments will publish on their website a list of all courses they plan to offer for all quarters in the upcoming academic year. These are **subject to change** but can help with long-term planning.

### Examples:

- Biology: https://biology.ucsd.edu/education/undergrad/course/course-offerings.html
- Chemical and Nano Engineering:
   <a href="https://cne.ucsd.edu/undergrad-programs/undergraduate-academic-planning">https://cne.ucsd.edu/undergrad-programs/undergraduate-academic-planning</a>
- Chemistry: https://www-chem.ucsd.edu/undergraduate/courses/index.html
- Mathematics: <a href="https://math.ucsd.edu/students/planned-course-offerings">https://math.ucsd.edu/students/planned-course-offerings</a>
- Physics: <a href="https://physics.ucsd.edu/students/undergraduate/education">https://physics.ucsd.edu/students/undergraduate/education</a>

# **Enrollment**

# **Enrolling in Classes**

UC San Diego's academic calendar operates on the quarter system. Each quarter is 10 weeks. The quarter system moves fast!

- Fall quarter: late September December (You will enroll in Fall classes in mid-August this year. When you're a continuing student, you'll enroll in May for Fall classes.)
- Winter quarter: early January March (you will enroll in Winter classes in November)
- Spring quarter: late March June (you will enroll in Spring classes in February)
- Summer quarter (optional!): two sessions that are each five weeks long. Session 1 is July -August, and Session 2 is August - September. Continuing students can enroll in April.

Full time enrollment is 12 units each quarter. Most students take 12-16 units each quarter. To graduate in four years, students would need an average of 15 units each quarter.

One unit equals one hour per week of in-class instruction. Most UC San Diego classes are 4 units. For each unit, expect to spend 2-3 hours each week outside of class doing homework and studying. This means for a 12 unit full time course load, most students have 3 classes. They spend 12 hours each week in class and should be studying 24-36 hours per week outside of class. This workload can change, depending upon course content and the professor's requirements.

### **Enrollment Time and Holds**

Holds will prevent you from registering for the upcoming quarter

- Go to <u>Holds</u> to check if you have any.
- If you have holds, contact the office that placed the hold. Your academic advisors **cannot** remove holds related to immunizations, finances, or missing admissions documents.
- WebReg will not allow you to enroll or Add/Drop/Change unless all enrollment holds have been cleared.

### **Enrollment Time**

Your enrollment time (also called enrollment appointment time) is not an actual appointment/meeting with an advisor. It is your assigned time to begin enrolling via WebReg. Times are staggered among students, and they are randomly assigned by the Office of the Registrar. Your academic advisors cannot change your assigned enrollment time.

• Check <u>WebReg</u> for your enrollment appointment start times for first pass and second pass.

### First Pass, Second Pass

Two pass enrollment is a process where students are allowed to enroll in classes in two separate passes. This process is designed to allow students to more equitably register for classes.

During the first pass, you can enroll in up to 11.5 units, and you cannot join waitlists for courses during this time. Your first pass enrollment time is open for 48 hours only.

Once your first pass window has closed, you cannot make changes to your schedule until the second pass opens. In the second pass, you can enroll in the remainder of your courses or units. You can enroll

for a total of 19.5 units, including wait-listed courses, during the second pass up until the first day of instruction (your second pass window does not close).

Starting on the first day of classes, you can enroll in up to 22 units. A request to enroll in more than 22 units needs approval from your College. New students in their first quarter at UC San Diego are **not** approved to enroll in more than 22 units.

We recommend our students to enroll in any required Biology, Chemistry, Math, and Physics courses during their first pass, and their major core courses (CENG and NANO) during their second pass. All students should contact their college advisor for General Education enrollment information.

### **Waitlists**

We strongly recommend you enroll in courses with open seats. However, if you want to add a class that is **full**, you must use WebReg to waitlist the course only once second pass enrollment begins.

- Waitlists are automated and used by all departments.
- Waitlists are first-come, first-served and updated nightly through the first two weeks of classes.
   You should attend class and keep up with all assignments. You will have access to Canvas during this time. The last night that waitlists are updated is Thursday of Week 2. If you are not added by then, you will NOT get a seat in the class.
- If you don't meet class requirements or if you have holds on your account when you attempt to
  move from the waitlist into the class, you will not be added to the class. Examples include
  missing prerequisites or already being enrolled in the maximum number of units for the quarter.
- You can only waitlist for one section of the course.
- You can't be simultaneously enrolled and waitlisted in different sections of a course.
- You will receive a message to your UCSD email from the Registrar's Office if and when you get off
  the waitlist and are enrolled into the course. At that time, it will be included on "My Schedule" in
  WebReg. Select it from the list of classes in "My Schedule" and confirm your grading option.

Being on a waitlist does **not** count for full-time enrollment. You need 12 units of enrolled coursework to be full time. If you receive financial aid, you must be fully enrolled (not waitlisted) in at least 12 units to receive your full financial aid.

# **EASy Requests**

The <u>Enrollment Authorization System (EASy)</u> is used to streamline the process of requesting enrollment authorization. You may need to submit an EASy request in these cases:

- Prerequisite clearance
  - Requesting to enroll in a class for which you have not met the pre-requisite.
  - You met the prerequisite via transfer credit or AP/IB credit but it is not yet posted on your Academic History.
- Class Level
  - Some courses require students to be upper division students (having earned 90 units to be Junior class level). If you have not yet reached Junior level, you would need to submit an EASy request for that course.
  - First-year seminars are restricted to first year students. If you are a first-year student with more than 30 units earned, you may need to submit an EASy request.
- Late adding classes (after week 2)

- Enrolling in graduate-level coursework (200-level)
- Enrolling in Special Studies courses (197, 198, 199)
- Requesting to take more than 22 units in a quarter

Submitting an EASy request does not guarantee that you will be allowed to enroll in the course. EASy requests require College and/or major advisor approval and may require instructor approval as well.

You can begin submitting EASy requests every quarter when enrollment opens.

### **Enrollment Authorization System (EASy requests) for the CNE Department**

Students are expected to complete all prerequisites and meet all course restrictions prior to enrolling in any undergraduate course offered through the Department of Chemical and Nano Engineering at UC San Diego. Prerequisites and restrictions are enforced in all courses. Prerequisites/restrictions **may**, under exceptional circumstance, be waived with instructor consent.

- Prerequisites are courses which must be completed prior to enrollment in the subsequent course
  to ensure adequate preparation. To request pre-approval for enrollment in a course where a
  pre-requisite is not yet completed, students must complete the justification section of the EASy
  request as to why they are requesting to waive a prerequisite.
- **Restrictions** are enrollment limitations put upon a course. Most commonly, courses are restricted to certain class levels (junior/senior only, for example) or to certain majors. Restrictions may also be put in place to manage seat capacity.

An undergraduate student will submit a **Course Pre-authorization request** for the following reasons:

- Pre-approval for enrollment to a class that has restrictions (major, class level, etc)
- When a course requires department approval
- Pre-approval to waive a course prerequisite under special circumstances (must be outlined by the student in the justification section)
- When an undergraduate student wishes to enroll in a graduate level course. (Only students with junior or senior standing and a minimum 3.0 gpa can enroll in graduate level courses with permission.)

### How to request a Course Pre-authorization

- 1. Have your Student User ID/PID and Password/PAC ready
- 2. Submit a request via the <u>UC San Diego Course Pre-authorization System</u>. (Be sure to include the Section ID number of the course for which you seek approval in the justification area. Requests without a Section ID included **will not** be considered).
- 3. A submission confirmation email will be sent to the student's @ucsd.edu account.
- 4. Once a final decision is made on the request, an email will be sent to the student's @ucsd.edu account. Note: It may take 5-7 business days for EASy requests to be fully processed.
- 5. If the Course Pre-authorization (EASy) request is approved, it is the student's responsibility to add (or waitlist, if full) the course via WebReg. All standard add/drop deadlines apply.

**Please note:** Any EASy requests for non-engineering courses (i.e. Chemistry, Math, Physics, etc) must be submitted directly to their respective department.

### **Choose Your Classes**

Priority enrollment is granted to majors for most CENG/NANO courses. Students from outside majors wishing to enroll in a course with a major restriction must submit an EASy request and are approved only if there are seats available in the class after all CE 25/NA 25 majors are enrolled.

### **CENG enrollment:**

First Year Students: Take CENG 4 (1 unit), CENG 15, CHEM 6A\*, MATH 20A\*. Enroll in CENG 4, CHEM 6A, & MATH 20A in your first pass. Enroll in CENG 15 in your second pass.

Transfer Students: Take CENG 4 (1 unit), CENG 100, CENG 101A, MATH 20E. Enroll in CENG 4, CENG 101A, MATH 20E in your first pass. Enroll in CENG 100 in your second pass.

### NANO enrollment:

First Year Students: Take NANO 4 (1 unit), NANO 11, CHEM 6A\*, MATH 20A\*. Enroll in NANO 4, CHEM 6A, & MATH 20A in your first pass. Enroll in NANO 11 in your second pass.

Transfer Students: Take NANO 4 (1 unit), NANO 11, NANO 102, MATH 20E. Enroll in NANO 4, NANO 102, & MATH 20E in your first pass. Enroll in NANO 11 in your second pass.

\*We list CHEM 6A & MATH 20A as the first Chemistry and Math courses to take. If you received AP credit, please move onto the next course in the sequence. If you have additional questions about which Chemistry and Math course you should enroll in, please ask a department advisor.

# **Petitions, Double Majors and Minors**

# **Department Petitions**

An Undergraduate Student Petition must be completed for various issues which may arise during a student's academic career.

### **Examples of student petitions:**

### Course Substitutions:

- Requesting to take an upper-division course as a Technical Elective in place of courses listed in the pre-approved lists
- Requesting to substitute a UC San Diego course with another course taken at another institution. General Education courses (Math, Chemistry, Physics, etc.) should be routed directly to the corresponding department
- o Requesting to substitute a course with courses taken abroad
- Please note that core courses cannot be substituted. All NANO or CENG courses listed
  as part of the major curriculum, with the exception of technical electives, are designated
  as core courses and cannot be substituted with an alternate course.

### • Major Requirement Waiver

- Requesting to graduate with "D" in any course that is a major requirement except CENG or NANO core courses
- Requesting to take graduate courses as part of CENG or NANO degree (Only students with junior or senior standing and a minimum 3.0 gpa can enroll in graduate level courses with permission)

### How Do I Submit a Petition?

- 1. Have your UC San Diego student PID# and password ready.
- 2. Log in via <u>Undergraduate Petition</u> portal.
- 3. Complete the petition request with course information and the reason for the petition.
- 4. Attach any supporting documents such as course syllabus, homework assignments, exam questions, project reports, etc., anything that will provide further information on the courses being petitioned. Only PDF files will be accepted.

Once the petition has been submitted it will first be reviewed by an advisor, then the teaching faculty, and finally the Undergraduate Affairs Committee (UAC) Chair. Once processed, the student will be notified of the decision via <u>Virtual Advising Center (VAC)</u> - an email will be sent to the student's UC San Diego email account alerting them that a VAC message is awaiting their review.

Any petitions or approvals for non-engineering courses (i.e. Chemistry, Math, Physics, etc) must be submitted directly to their respective department.

# **Declaring a Minor**

Minors are not required for graduation. If students have an interest in an area outside their major, they can consider a minor (which is usually seven classes). The process for <a href="https://www.need.no.nin.com/how-to-declare-a-minor">how to declare a minor</a> is outlined on TritonLink. You can declare a minor after your first quarter - you need a UC GPA first, and we want to make sure you are on track with your major and general education requirements.

There are some restrictions on the majors and minors students can combine, due to some options having too much overlap. Consult the department advisor with any questions.

Please note, our department does not offer minors. Additionally, per Jacobs School of Engineering policy, you cannot minor

# I Want to Double Major

The instructions for how to declare a double major are on TritonLink. You can declare a double major after your first quarter - you need a minimum 2.0 UC GPA to be in Good Standing. We encourage you to consider whether a double major is the best path, or if experiential learning is a better supplement to your primary major.

There are some restrictions on the double majors that students can declare, due to some combinations having too much overlap. Consult the department advisors via the Virtual Advising Center with any questions. **Per Jacobs School of Engineering policy, you cannot double major in another engineering program.** 

# How Can I Change My Major?

Once you have enrolled for your Fall courses (in mid-August), you can change your major to a non-selective major by using the <u>Major/Minor tool in TritonLink</u>. Your major advisor will then be the advisor(s) in that major/department unit. See the <u>Department and Program Advisor Directory</u>. You can contact them via the Virtual Advising Center at <u>VAC.ucsd.edu</u>.

If the major you want is a selective major, there is no guarantee you will be able to switch. Selective majors are majors that receive more applications than there are available spaces, such that departments cannot always offer admission to all qualified students. Students applying to a selective major must have completed the required screening courses for the desired major with a C- or higher in each course, and have a minimum 2.0 UC GPA. Selection into the selective major will be based on a point system. You must apply into the selective major through the selective major process by following all timelines and criteria. Most Engineering majors, Data Science, and all Public Health majors are selective. Read more about that process on the Undergraduate Education website. Transfer students admitted to UC San Diego for Fall 2025 and after will no longer be allowed to apply to selective majors in the Summer application cycle after their first year.

In our department, NanoEngineering is a **non-selective major**. Chemical Engineering is a **selective major**, please review our <u>Admissions page</u> for eligibility requirements. More information about changing your major is available on <u>TritonLink</u>.

# What Else Do I Need to Know?

For many Frequently Asked Questions from new students, visit advising.ucsd.edu.

# **UC San Diego Email**

Your @ucsd.edu email address will be the recipient of official email communications. The Office of the Registrar, Financial Aid and Scholarships, Virtual Advising Center responses, and many other units will send notifications there. It is crucial you check your UCSD email daily. Contact <a href="IT Services">IT Services</a> if you have any questions about accessing your UCSD email.

# **Important Dates**

Most deadlines for students occur in the same week every quarter. As you progress through your time at UC San Diego, you will want to memorize the following deadlines:

- Automatic wait-lists close Week 2, Thursday
- Deadline to add classes Week 2, Friday
- Financial Aid freeze day (when full-time or part-time aid is locked in) Week 2, Friday
- Deadline to apply for part-time status to pay part-time fees Week 2, Friday
- Deadline to drop a course without a W grade Week 4, Friday
- Deadline to change the grading option or number of variable units for a course Week 6, Friday
- Deadline to drop a course with a W grade Week 6, Friday
- Deadline to request an Incomplete grade for a course Monday after Finals Week
- Grades post to My TritonLink Week after finals, usually by Thursday

Tip: Bookmark the Enrollment and Registration Calendar

# **Course Format at UC San Diego**

### **Syllabus**

For every course at UC San Diego, you will be provided with a syllabus by the course instructor. The syllabus is a document that outlines the expectations, goals, assignments, and exams for the course. It is important to review the entire document to ensure that deadlines and requirements are not missed.

### **Instructors**

Instructors can be professors, lecturers, or in some cases graduate students. Instructors prepare all course materials, lead the course, and are responsible for grades. If you have questions related to the class, syllabus, exams, etc. you can contact the instructor directly via email or through Canvas for the specific class.

### **Teaching Assistants (TAs)**

Larger courses or courses with discussion sections often employ graduate students as Teaching Assistants (TAs). TAs provide additional support for the class through office hours, review sessions, grading course assignments, etc. In the CNE department, TAs are provided based on course enrollment and will not be provided for all courses. Occasionally, a course may have undergraduate students who are providing support for the course as well.

### Office Hours

Instructors, TAs, and some tutors will offer office hours every week to support students in their classes. Office hours are time set aside to ask questions you may have about the homework, reading, exams, or your grades. Your instructors are there to answer your questions and this can be a great time to review your understanding of the course material.

### **Textbooks and Course Materials**

Your course materials will vary by class and instructor.

- Check <u>courses.ucsd.edu</u> for a list of required class resources. At the first lecture, your instructor will tell you if you'll need any other materials.
- Use the Bookstore's online tool to find textbooks for your course.
- You can buy your textbooks at the UC San Diego Bookstore in the Price Center or through discount online retailers.
- Consider borrowing items in digital formats through the <u>Library's Course Reserves</u>.
- You may need to purchase codes for online programs to submit homework (e.g. Math courses)
- Lab courses may require you to purchase equipment.
- Most courses will use Canvas.
- Many instructors will also record their lectures using <u>Podcasting</u>.
- Your instructor may require an iClicker to participate in class.

If in doubt, check the syllabus or ask your instructor!

# **Pay Your Bill**

Your billing statement will be available on <u>TritonPay</u> in early September. The deadline will be in late September. See the exact dates this year on the <u>Enrollment and Registration Calendar</u>. If you do not pay your bill or enroll in a payment plan by the deadline, you will be dropped from your courses.

Academic advisors do not have access to your financial information or billing statement. For questions, you must contact Student Financial Solutions.

# What Can I Do With My Major?

We encourage students to start thinking about their career early in their academic program. Your major advisor can help with career exploration ideas, including recommending faculty for you to meet. The below resources are also available to help you through your career development process.

### **Career Center**

The <u>UC San Diego Career Center</u> has information on how to find that ideal job or internship. They offer:

- <u>Assessments</u> to explore strengths, personality types, and interest areas. Being able to articulate
  your strengths and personality traits will help you in interviews and find jobs that are a strong fit
  for you.
- Tips for creating and polishing <u>resumes</u> and <u>cover letters</u> as well as preparing for an <u>interview</u>.
- Resources for finding jobs, internships, and research opportunities.
- Drop-in and career advising appointments with Career Center staff.
- Sign up for a <u>Handshake account</u> and subscribe to weekly email updates about job fairs, grad school panels, and company/organization outreach events.
- <u>Tritons Connect</u> is a networking tool for UCSD students and alumni. You can use it to find a mentor.
- The <u>Research Experience & Applied Learning (REAL)</u> Portal offers research, internship, international, service learning, entrepreneurial, leadership, and other co-curricular opportunities that help students build real-world skills by applying knowledge gained in the classroom.

### **Pre-Health Goals**

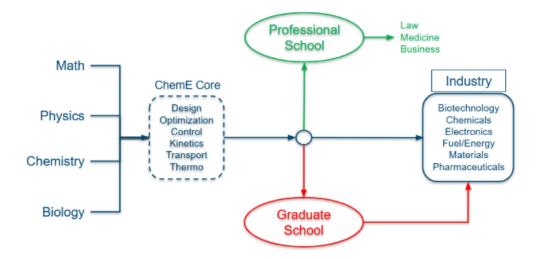
Any major can pursue a pre-health path. Visit the <u>Health Beat</u> <u>website</u> for details about how to prepare for these programs after you finish your undergraduate degree at UC San Diego.



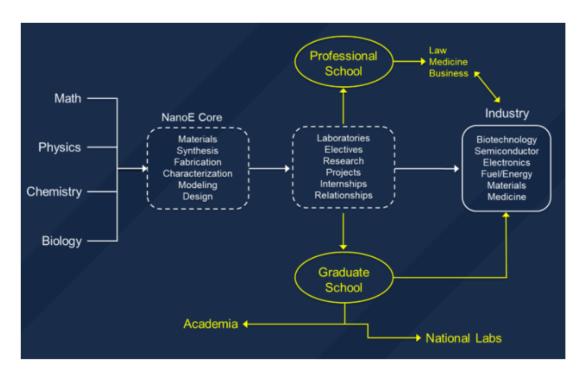
# **Department Resources**

The <u>Jacobs School of Engineering maintains a Job/Internship Bulletin</u> that is available to all students. With this application, students would apply to positions directly to the person of contact in the listing. This bulletin is updated and positions are added on a regular basis.

# **Chemical Engineering Career Pathways**



# **NanoEngineering Career Pathways**



# **Industries Employing Our Students**

Earning a B.S. in Chemical Engineering or NanoEngineering will provide training for traditional engineering fields, in addition to new, developing fields including:

- Electronic materials & device manufacturing
- Polymers & composite materials
- Sensor technology & environmental remediation
- Alternative & renewable energy
- Paints, coatings, advanced inks
- Agriculture; food and drink
- Pharmaceuticals, drug delivery, and technology
- Advanced textiles
- Personalized medicine: tissue engineering, gene therapy, stem cell development

Our students have gone on to work at companies across various industries, including Apple, Dexcom, Illumina, Intel, Thermo Fisher Scientific, ASML, and more!

# **Academic Opportunities**

Additional academic opportunities not required in the NanoEngineering or Chemical Engineering curriculum plans are available to undergraduates. The Jacobs School of Engineering, and UC San Diego as a whole, offer a number of student resources to promote a well-rounded and enriching academic experience.

# **Special Studies**

### CENG 199 and NANO 199: Independent Study for Undergraduates

CENG 199 or NANO 199, Independent Study for Undergraduates, offers qualified and motivated students the opportunity to work closely with faculty and graduate students to gain first hand experience in conducting research. Students may take CENG 199 (for CENG majors) or NANO 199 (for NANO majors) only under the guidance of a faculty member in the Department of Chemical and Nano Engineering.

- CENG 199. Independent Study for Undergraduates (4 & 4) Research project as equivalent to a "senior thesis" can be approved for two Technical Elective courses (eight units total). This course is taken as an elective on a P/NP basis. It must be done in consecutive quarters and the student must find a faculty member who will oversee the research project. Eligible students must have completed at least 90 units and must have a UC San Diego cumulative GPA of 3.0 or better. Detailed policy and procedures may be obtained from the Student Affairs Office. *Prerequisites:* Consent of instructor.
- NANO 199. Independent Study for Undergraduates (4 & 4) Research project as equivalent to a "senior thesis" can be approved for two NanoEngineering Elective courses (eight units total). This course is taken as an elective on a P/NP basis. It must be done in consecutive quarters and the student must find a faculty member who will oversee the research project. Eligible students must have completed at least 90 units and must have a UC San Diego cumulative GPA of 3.0 or better. Detailed policy and procedures may be obtained from the Student Affairs Office. **Prerequisites:** Consent of instructor.

### Using special studies courses as technical electives:

If a student would like to use their 199 credit towards their elective requirements for their major, they must enroll in two consecutive quarters of 199 courses for a total of 8 units. All special studies courses are taken as P/NP, however to be considered for technical elective credit, the final report must be assigned a letter grade by the overseeing faculty advisor. After completion of the second 199 course, the graded report is then submitted by a <u>course substitution petition</u> for technical elective credit.

### How to enroll:

A step-by-step guide on how to complete a 199 contract for enrollment can be found on our CNE website at <a href="https://cne.ucsd.edu/undergrad-programs/degree/advising/special-studies-course">https://cne.ucsd.edu/undergrad-programs/degree/advising/special-studies-course</a>. After a student has completed the contract with their faculty advisor, a special studies EASy request is submitted with the contract attached as supporting documentation. Once approved by the instructor and the department, the registrar's office will create a 199 section for the student to enroll in through webreg.

### **Additional Information**

If students enroll in their first 199 course in spring quarter, they can enroll in their second consecutive course in either summer or fall quarter.

If a student would like to work with a faculty advisor outside of the department, they must submit an undergraduate petition to receive chair approval and find a co-advisor within the Department of Chemical and Nano Engineering. The purpose of the co-advisor will be to confirm that the project scope is pertinent to either Chemical Engineering or NanoEngineering. It is the responsibility of the student to approach the faculty member about undergraduate research opportunities in their lab.

# **Internships**

There are a range of resources available to assist students in finding an internship relevant to their field of study:

- The Jacobs School Job & Internship portal allows students to create and upload their own profile
  and resume, view and apply to a variety of internship opportunities, and gain access to potential
  employers. <a href="https://jacobsschool.ucsd.edu/cap/job-internship">https://jacobsschool.ucsd.edu/cap/job-internship</a>
- The Academic Internship Program offers students an opportunity to apply academic knowledge and analytical skills in professional settings while earning academic credit. <a href="https://aip.ucsd.edu/">https://aip.ucsd.edu/</a>
- UC San Diego Career Center lists hundreds of internships through both the AIP and Handshake portals. Mico-internships and research opportunities are also available through the career center. <a href="https://career.ucsd.edu/">https://career.ucsd.edu/</a>

# **Student Resources and Organizations**

**IDEA Center** supports several programs that promote academic and professional development for undergraduate students across all engineering departments. The IDEA Center provides information on engineering student organizations, success workshops, mentoring and internship programs, and tutoring. The IDEA Center is in Jacobs Hall (EBU-1) Room 1400, or online: <a href="https://jacobsschool.ucsd.edu/idea">https://jacobsschool.ucsd.edu/idea</a>

Academic Achievement Services provides peer education for historically difficult courses at UC San Diego. Our peer educators are current undergraduate students who have excelled in the course(s) they support and are trained to help students master course material within a community of learners. The two programs we offer are Supplemental Instruction (Peer-Led Learning Support) and Content Tutoring, both with in-person and virtual offerings. <a href="https://aah.ucsd.edu/about/index.html">https://aah.ucsd.edu/about/index.html</a>

**Teaching and Learning Commons** provides comprehensive academic support for students. Services offered by Academic Achievement, Experiential Learning, and Writing and Communication Learning Services empower students to take control of their education, helping them to develop essential skills for learning across disciplines and enabling them to achieve their full potential. <a href="https://commons.ucsd.edu/">https://commons.ucsd.edu/</a>

**Corporate Affiliates Program (CAP)** provides custom services to achieve your corporate goals. Available services include industry access, research, leadership, and employment and internship opportunities. CAP works with some of the top engineering companies. <a href="https://jacobsschool.ucsd.edu/cap">https://jacobsschool.ucsd.edu/cap</a>

**Academic Internship Program (AIP)** allows students to engage in the community and explore careers through experiential learning. Students are given opportunities to engage in research and work in partnerships with different departments, programs, and faculty. Visit their website at <a href="mailto:aip.ucsd.edu">aip.ucsd.edu</a>.

**UC San Diego Career Center** helps students determine and fulfill their career goals. The Center delivers a wide range of services across two programmatic units:

The Career Education and Advising team (CEA) empowers students to develop and utilize their self-awareness, professional development skills, and proven resources to identify and pursue career employment and professional school admission.

The Industry Engagement team (IE) connects students with bona fide career opportunities, as well as experiential positions, including internships, part-time on- and off-campus jobs, work-study positions, and Peace Corps service. Visit their website at: <a href="mailto:career.ucsd.edu">career.ucsd.edu</a>.

Counseling and Psychological Services (CAPS) has been an integral member of the UCSD community since the late 1960's. We are accredited by the International Association of Counseling Services (IACS). Our integrative and student-centered services are designed to support students towards their academic success and personal development and well-being while at UC San Diego. Please visit their website at <a href="https://caps.ucsd.edu/">https://caps.ucsd.edu/</a>.

**UC San Diego Basic Needs Initiatives** is a collection of services provided by campus partners to work with both undergraduate and graduate students who have concerns with access to Basic Needs resources. The Hub's services are categorized by Food Security, Housing Resources, and Financial Wellness. Please visit their website at <a href="https://basicneeds.ucsd.edu/">https://basicneeds.ucsd.edu/</a>.



**AICHE** – **American Institute of Chemical Engineers** This student organization aims to promote the professional development of undergraduate and graduate chemical engineers at UC San Diego and to foster a community among its members through social activities, career-building events, and service opportunities. Please visit their website at <a href="https://aiche.ucsd.edu">https://aiche.ucsd.edu</a>.



**NETS – NanoEngineering and Technology Society** This student organization at UC San Diego is dedicated to building and supporting the NanoEngineering community of students, faculty, and corporate affiliates through academic and professional advancement, social and networking events, and outreach opportunities. Please visit their website at <a href="https://netsucsd.weebly.com">https://netsucsd.weebly.com</a>