

# Mechanical Engineering Faculty List

## **Professors (19)**

Bamieh, Bassam  
Begley, Matthew (67% MECE, 33% ENMT)  
Beltz, Glenn  
Beyerlein, Irene (67%MECE, 33% ENMT)  
Bullo Francesco  
Daly, Samantha  
Gibou, Frederic (67% MECE, 33% COMS)  
Levi, Carlos (25%MECE, 75% ENMT)  
Matthys, Eric  
McMeeking, Robert (49% MECE, 51% ENMT)  
Meiburg,Eckart  
Meinhart, Carl  
Mezic, Igor  
Moehlis, Jeff  
Pennathur, Sumita  
Petzold, Linda (60% MECE, 40% COMS)  
Pruitt, Beth (67% MECE, 33% BMSE)  
Yang, Henry (Chancellor)  
Valentine, Megan

## **Associate Professors (2)**

Bennett, Ted

## **Assistant Professors (9)**

Dressaire, Emilie  
Hawkes, Elliot  
Liao, Bolin  
Luzzatto-Fegiz, Paolo  
Sauret, Alban  
Stowers, Ryan  
Yeung, Enoch  
Zhu, Yangying

## **Teaching Professors (2)**

Susko, Tyler  
Tsai, Geoff

## **Adjunct Faculty**

Volkman, Neils (ending 10/2023)

## **Affiliated w/ME**

Atzberger, Paul (Math – 10/2020)  
Hespanha, Joao (ECE – 2/2022)  
Holden, Patricia (Bren - 9999)  
Keller, Arturo (Bren - 9999)  
Masanet, Eric (Bren – 6/2024)  
Plaxco, Kevin (Chem/Biochem – 6/2022)

## **Emeriti Faculty**

Bruch, John  
Clarke, David  
Hickman, Scotty  
Homsy, Bud  
Lick, Willy  
Lucas, Gene  
MacDonald, Noel  
Marschall, Ekkehard  
McLean, Steve  
Milstein, Frederick  
Mitchell, Thomas  
Odette, Robert  
Paden, Brad  
Theofanous, Theo  
Tulin, Marshall  
Yuen, Walter

## **Lecturers**

Chambers, Ryan  
Dahlen, Greg  
Fields, Kirk  
Laguetta, Steve  
Marks, Trevor

## **Key Personnel**

**Department Chair:**

Professor Jeff Moehlis

**Department Vice Chair & Graduate Program Director:**

Professor Samantha Daly

**For a current listing of Mechanical Engineering department staff contacts, please visit the ME Department website directory:**

<https://me.ucsb.edu/people/staff>

# **I- Getting Started!**

## **The UCSB Campus**

The University of California, Santa Barbara is a major research institution offering undergraduate and graduate education in the arts, humanities, science and technology, and the social sciences. Large enough to have excellent facilities for study, research, and other creative activities, the campus is also small enough to foster close relationships among faculty and students. The total student population is approximately 26,000, with 23,000 undergraduates and 3,000 graduate students. The UCSB faculty numbers 1,112 which includes six Nobel Prize winners, recipients of the National Medal of Science, members of the National Academy of Science and the National Academy of Engineering, numerous Guggenheim fellows, Fulbright scholars, and fellows of the National Endowments of the Arts and for the Humanities.

The UCSB campus has 5 academic units: The Colleges of Creative Studies, Engineering, Letters and Science, the Graduate School of Education, and a professional school of Environmental Science and Management.

The UCSB campus was established in 1944 and moved to its present location on the site of a former marine base in 1953. The 815-acre grounds include the main campus, the Santa Ynez and Storke apartments, the West Campus, and the North Campus. The student community of Isla Vista is surrounded by the UCSB campus and the Pacific Ocean.

## **The College of Engineering**

The College of Engineering is the second largest undergraduate college at UCSB. The college has become in recent years one of the most dynamic in the nation and consists of five degree-granting departments:

- Chemical Engineering
- Computer Science
- Electrical and Computer Engineering
- Materials (graduate degrees only)
- Mechanical Engineering

The college facilities are contained mainly in 5 buildings on campus (Harold Frank Hall, Engineering Bldg II, Engineering Sciences Building,

Elings Hall, Bioengineering Building, and the Materials Research Laboratory) and the Engineering Research Centers Building off-campus. In addition to its academic departments, the college has nearly 20 organized research centers in a variety of multidisciplinary activities. You can find more information about specific research areas and research centers on our department research webpage: <https://me.ucsb.edu/research>

## **The Department of Mechanical Engineering**

The Mechanical Engineering Department at UCSB is at the forefront of current research and technology. Its outstanding quality is reflected by the large number of our senior faculty who are members in the National Academy of Engineering, and by the NSF Career Awards won by our young faculty members. The Department offers one of the most exciting, challenging, and rewarding graduate research and education programs in the country. Our graduate program is focused in the following areas: Bioengineering and Systems Biology; Computational Science and Engineering; Dynamics, Control and Robotics; Microscale Engineering including MicroElectroMechanical Systems (MEMS), Bio-MEMS, and Microfluidics; Fluids and Thermal Transport; and Solid Mechanics, Materials and Structures.

Graduate study in our Department is complemented by outstanding programs in related departments, such as Materials, Chemical Engineering, Electrical and Computer Engineering, and Computer Science. Furthermore, close ties exist with other research centers on campus, including the Materials Research Laboratory, the Bren School of Environmental Science and Management, and the Kavli Institute for Theoretical Physics. We pride ourselves on the strength and vitality of our interdisciplinary research activities, which provide a cross fertilization that contributes significantly to the strength and productivity of our research groups.

## **Orientation**

Please note that the Staff Graduate Advisor will send out an email to all newly admitted students sometime in early-August with information regarding all new student orientations, arrival dates, registration information, recommended courses list, temporary advisors list, and other important beginning of the year details.

- **Planning for Arrival** International students should plan to arrive at least two weeks prior to the beginning of the quarter. Domestic students should plan to arrive at least one week prior.

- **Housing** Visit the housing office near Storke Tower for information on available community housing. The department may know of a few roommate openings from students finishing and leaving before the new quarter begins. You should expect to pay first and last month's rent plus a cleaning deposit.
- **New Graduate Student Orientation Meetings** A general meeting will be held during the week before classes begin for all new students on campus. The Faculty Graduate Advisor will also hold a separate orientation for new students during the first week of classes. Attendance is mandatory at these two orientation meetings.
- **Advising** Upon arrival, temporary advisors will be appointed in each research area to help you with any questions you may have about your Fall quarter schedule. As described later, the department has a formal procedure for selecting a faculty member to serve as your supervisor/advisor for the remainder of your degree. That selection procedure begins during the end of Fall quarter, with the assignments being made by the middle of Winter quarter (for students beginning Winter and Spring, this takes place their first quarter).
- **Fees** If you have received a letter of full financial support, the amount of support offered for registration fees, health insurance and tuition (for non-residents) will be paid by the department. You are responsible for all other fees incurred. It is essential that you review your Billing-Accounts Receivable or BARC statement each month for other charges incurred that you will be responsible for at <http://www.barc.ucsb.edu>. There is a fee deadline for all "now due" charges on your statement at the beginning of each quarter (the deadline date is posted on your online GOLD account). If you have any questions regarding your statement, please see the Staff Graduate Advisor or contact the Billing Office prior to this deadline. **NOTE:** A \$50.00 late fee will be charged to your account if there is a balance of \$2.00 or more after the deadline.
- **Registration** All students must register for a minimum of **12 units** every quarter. Registering for classes is done on-line on GOLD, <https://gnet.ucsb.edu/gold/index.asp>. When you logon to your GOLD account, check the deadline date, as you will be registering for next quarter's classes during the current quarter. If you do not register for classes by the deadline, you will be assessed a \$50.00 late fee. Graduate students have until the **15<sup>th</sup> day of instruction** to add classes to their schedule without approval from the Graduate Division. After this deadline, schedule adjustment petitions, along with a letter of justification for approval, are

required to be sent to the Graduate Division. Graduate Students have until the last day of instruction to drop classes.

- **Laboratory Safety Course** All incoming graduate students are required to attend the Laboratory Safety Course, sponsored by the Environmental Health and Safety Department, which is held prior to the beginning of Fall classes. This course is mandatory for all personnel prior to working in any mechanical engineering laboratory.
- **Computer Accounts** Each student *must* have an engineering email account and check their email on a regular basis. Please visit the following link to sign up for an engineering account: <https://accounts.engr.ucsb.edu/create/> It is suggested that you forward your uemail account to your engineering account.
- **Mailboxes** Each student has a mailbox for messages and mail and are located within the hallway adjacent to the main ME office. This should be checked weekly. Mail is delivered each morning after 9:00 a.m. Incidentally, the mailboxes in the copier room are for departmental use only. The campus mail service **will not** take personal mail.
- **CAD Lab** The CAD Lab room features a large number of PC's and work stations networked to printers, plotters, and other peripherals.

# II- International Students

## English as a Second Language (ESL) Policies

Academic departments help the Graduate Division monitor three aspects of ESL policy related to the following required examinations:

- **English Language Placement Exam (ELPE)**
  - All incoming international graduate students and permanent residents whose first language is not English must meet proficiency requirements in spoken and written English before registering at UCSB.
  - This required exam is conducted by faculty of the English as a Second Language (ESL) Program *prior to the beginning of each quarter*.
  - The ELPE comprises of both a **written** and an **oral** examination. After the writing exam, the Staff Graduate Advisor makes individual department appointments for the oral exam to take place on a different day.
  - The results of the ELPE, including course placements when appropriate, are communicated to each department by the ESL Program office.
  - Based on the ELPE performance, students are either placed into a compulsory ESL class with coursework aimed at helping improve the students spoken English or are exempted-out of the ESL Program.
  - Students are expected to complete the ESL course progression within three quarters.
  - Students who fail the ELPE must register for and attend a prescribed ESL course and will have their registration blocked for future quarters until they re-take the ELPE and pass.
  - **Please note:** Students who are exempt from the TOEFL or IELTS requirement are still required to take the ELPE.
  
- **Minimum Proficiency Requirements in Spoken and written English**

In some cases, students must satisfy proficiency requirements in spoken and written English for the purposes of research and communication with colleagues before they are awarded a degree at UCSB.

- Coursework may be required to meet the department's proficiency requirements in English. If you have questions about this class, please contact the Graduate Advisor in the department.
- Continuing international students who need additional ESL coursework will be pre-registered in the appropriate ESL classes.
- Coursework in English is always conducted through the English as a Second Language (ESL) Program. More information can be found on [www.ems.ucsb.edu/](http://www.ems.ucsb.edu/)

- **TA Language Evaluation Exam**

Graduate Council policy requires all prospective teaching assistants (TAs) whose first language is not English to take the TA Language Evaluation in order to be certified to hold sole classroom teaching or laboratory responsibilities.

- This required exam is scheduled by your department and conducted through the English as a Second Language (ESL) Program *prior to the beginning of each quarter*.
- The Language Evaluation exam requires the prospective TA to give a 5- to 10-minute **oral presentation** in English on an academic topic assigned in advance by the department. The evaluators will assess the student's ability to explain academic concepts, and ability to understand and answer questions of the type undergraduates frequently ask in class.
- The exam is coordinated by the Graduate Advisor who will notify the student of the details prior to the scheduled examination date. If you have any questions, please contact the Graduate Advisor in the department.
- Only students who demonstrate acceptable spoken proficiency in the English language evaluation will be eligible for classroom teaching responsibilities.
- TA's who fail the language evaluation will be assigned to alternate, non-teaching responsibilities determined by the department, as well as assigned to a compulsory ESL class with coursework aimed at helping improve the TA's spoken English.
- If university ESL requirements are not met, Graduate Division will enforce one or more of the following options: withholding of RA ships; withholding of degrees; blocking of registration for future quarters and /or blocking advancement to candidacy.



## **Office of International Students and Scholars**

It is essential that students keep informed of matters pertaining to their visa. The Office of International Students and Scholars (<https://oiss.ucsb.edu/>) has counselors available to assist and advise international students in many areas, including: housing, visas and immigration matters, financial aid, cross-cultural programs and English conversation classes.

# III- Registration and Coursework

## Graduate Status/GPA Requirement

Maintaining graduate status involves paying fees, registering for 12 units each quarter, and maintaining an overall GPA of **3.0 or better**. Failure to maintain academic standards results in probation or dismissal; failure to pay fees and register (unless on approved leave of absence) results in lapse of status as a graduate student. Only work taken when a student is in graduate status may be counted toward a graduate degree.

Students who fail to pay fees and register for classes by the third week of classes each quarter lapse status as graduate students and must either petition for reinstatement. For details, see the section on petitions below.

Registration as a graduate student in the Spring quarter maintains graduate status until the beginning of the next Fall quarter. A student who registered in Spring may therefore take examinations or file a thesis or dissertation during summer without additional fees. A student who does not register Spring quarter will owe a filing fee to take Master's examinations, file a thesis or dissertation, or take the PhD qualifying exam over the summer.

## Registration and Full Time Status

For purposes of reporting graduate enrollment to UC system wide, 12 units is considered full-time status. As resources come to the campus based on the 12-unit formula, **students are required to be enrolled for a minimum of 12 units each quarter**. There is no an upper limit on the number of units a graduate student may take in their graduate career.

## Part-Time Graduate Status

At present, there is no provision for part-time graduate status: *All graduate students are assessed full fees no matter how many units they take.* Students who are physically elsewhere are considered "in residence" at UCSB if they pay fees and register for classes. Students doing research outside the state of California may be eligible for fee reductions through "in absentia registration."

## Leaves of Absence

Continuous registration is expected of all graduate students. Leaves of Absence may be granted under extraordinary circumstances, and must be approved by the Graduate Advisor prior to petitioning Graduate Division.

## Registration Information

All information, including deadlines, is on-line at <http://www.registrar.ucsb.edu>. *Please refer to it often.*

- Continuing students register using GOLD, <https://my.sa.ucsb.edu/gold/login.aspx> in the middle of the current quarter for the following quarter (including Fall).
- New students and those returning from a Leave of Absence register when the quarter begins.
- Fees need to be paid by the first day of instruction.
- Schedule adjustments take place during the first week of the quarter. Students may add and drop courses without a fee. After this time, schedule changes are \$3 each. Graduate students have until the **15<sup>th</sup> day of instruction** to add classes to their schedule without approval from the Graduate Division. After this deadline, schedule adjustment petitions, along with a letter of justification for approval, are required to be sent to the Graduate Division.
- Classes can be dropped until the last day of instruction via GOLD. Most classes can be added using add approval codes that are issued by the Staff Graduate Advisor. If approval codes are not available, add petitions can be picked up from the department office. Petitions are to be taken to the Registrar's Office once approval has been given by the instructor and the Graduate Advisor.

# **IV- Employment, Financial Aid and Fellowships**

## **Student Employment**

Academic employment is the single largest source of graduate student support at UCSB. Graduate Student Researchers (GSR), Teaching Assistants (TA), and Readers/Graders must be registered graduate students in good standing (i.e. 3.0 GPA or better and less than 12 units of incomplete grades) to be employed.

With the 1986 revision of the tax code, all wages (including stipends and those earned as a TA or GSR) are fully taxable. (See section on Taxes)

Student academic appointments, in general, are limited to 50% time (20 hours per week) during the academic year but can be 100% over summer. If this time limitation results in undue hardship on either the student or the department, the chair or Graduate Advisor may ask for an exception up to a maximum of 75% time for total combined UC employment.

It is expected that graduate students will not have a job away from the university.

The Defined Contribution Plan is a qualified retirement plan established and maintained under section 401(a) of the Internal Revenue Code. The plan is administered by University of California Employee Benefits in the Office of the President, located in Oakland. The required 7.50% Plan contribution is deducted from gross salary each pay period and income taxes are calculated on remaining pay, thus reducing your taxable income. Taxes on the contributions and any earnings are deferred (i.e. postponed until you withdraw the money, which can only occur upon termination of UC employment, or retirement). To help you keep track of account activity, UC Benefits will send you personalized quarterly statements showing contributions and earnings, losses, and a summary of quarterly transactions. It is important to keep your address current with the Accounting Office.

If you are to be appointed as either a Graduate Student Researcher (GSR) or Teaching Assistant (TA), there are several forms that need to be filled out, including eligibility for employment, which requires that you present proof in the form of two identifications – Driver's License or Passport, Birth Certificate or Social Security Card. Foreign students

must also provide visa information. Employment forms are available in the department office.

Your first paycheck will arrive the month following that for which your employment began. In Fall, that will be November 1st.

- **Teaching Assistantships (TAs)**

A TA is chosen for excellent scholarship and promise as a teacher, and serves an apprenticeship under the active tutelage and supervision of a regular faculty member. The department vice-chair, acting upon nominations made by department members, is authorized to appoint TAs. However, the Dean of the Graduate Division must approve all exceptions to appointment criteria.

TA appointments are communicated through TA Notification Letters and TA duties are described in the TA Supplementary Information document. TA responsibilities include meeting regularly with the instructor, holding regular office hours, grading weekly assignments and other duties as discussed with the instructor and compatible with the TA Supplementary Information document. The TA is not responsible for the instructional content of a course, for selection of student assignments, for planning of examinations, or for determining the term grade for students. Neither is a TA to be assigned responsibility for instructing the entire enrollment of a course nor for providing the entire instruction of a group of students enrolled in a course. The TA is responsible for the conduct of recitation, laboratory, or quiz sections under the active direction and supervision of a regular member of the faculty to whom final responsibility for the course's entire instruction, including the performance of TAs, has been assigned.

- **TA Policies**

All Ph.D. students starting Fall 2004 or later are *required* to TA a minimum of 2 quarters after they advance to candidacy. TA responsibilities begin on the first day of the quarter and end when grades are due to the Registrar. TAs must gain instructor approval for planned absences well in advance of any leave.

- **TA Fee Remission**

Teaching Assistants whose appointment is at least 25% time qualify for partial fee remission and payment of health insurance. Not covered by partial fee remission are tuition and lock-in fees (about \$320 per quarter for AY 19-20). *These remaining fees are the sole responsibility of the students unless the department or an advisor has promised to cover these costs.*

NOTE: The remissions quoted are consistent with the terms of the current contract. Please be aware that future wages, terms, and conditions are subject to modification based on the collective bargaining process.

- **Graduate Student Researchers (GSRs)**

A GSR is a graduate student who is involved in the research project of faculty members. GSRs are selected for high achievement and promise as creative scholars; they may collaborate in the publication of research results as determined by supervising faculty members. GSRs may not be assigned teaching, administrative, or general assistance duties. The Dean of the Graduate Division must approve all exceptions to appointment criteria. A graduate student must be registered in the previous Spring quarter to be eligible for a Summer GSR appointment. New students whose first quarter of registration will be in Fall quarter may not be GSRs prior to that quarter. *GSRs must submit signed timecards to the Personnel Assistant by the 18<sup>th</sup> of each month.*

- **Fee and Tuition Remission for GSRs**

Graduate Student Researchers (GSRs) qualify for full fee and tuition remission if they meet the following criteria: a) they are appointed for at least 35% (all GSR appointments combined) over the three months of the quarter, or who work at least 140 hours during the 10 weeks of instruction, b) have appointments that begin within the first three weeks of the quarter. Full fee and tuition remission includes the payment of tuition, health insurance for all eligible students, non-resident tuition supplement for international students, and non-resident tuition supplement for domestic students during their first year only. Please refer to the following website for fee structure tables illustrating fee remissions:

<http://www.graddiv.ucsb.edu/financial/employment/academic-appointments>

## **Need-Based Financial Support**

Graduate students may apply for need-based grants, loans, and work-study awards through the Financial Aid Office, <http://www.finaid.ucsb.edu/>. The programs are based entirely on demonstrated financial need and require a separate application.

**Only U.S. citizens and permanent residents may apply for funds administered by the Financial Aid Office.** Students' eligibility for

aid is determined by comparing the "Estimated Student Budget" with the individual student's actual resources. Financial Aid has calculated specific estimated student budgets for both single and married students, residents, and non-residents.

Assistance from Financial Aid is usually offered as a combination package of the following types of aid:

- Grants As with fellowships, grants are non-repayable awards.
- Work-Study In this program, student salaries are paid partly by the Federal Government and partly by the hiring department (usually a 60%/40% split). ***Any on-campus job may employ students with work-study funding.***
- Loans The Federal Direct Loan is provided by the Federal Government and is administered directly by UCSB. The loan proceeds can be applied to a student's BARC account. The interest rate is variable but is capped at a maximum of 8.25%. Students who demonstrate financial need may qualify for the subsidized Direct Loan program. The Federal Government pays the interest that accrues while the student is enrolled in school. Re-payment begins six months after the student graduates. The annual loan limit is \$8,500 for independent graduate students. Students who do not demonstrate financial need may qualify for the unsubsidized Direct Loan program. Interest begins accruing immediately. Students are responsible for the payment of interest while in school. Payment of interest may be deferred until after the student graduates. The annual loan limit is \$18,500 for graduate students.

To apply for financial aid, students submit a Free Application for Federal Student Aid (FAFSA) and tax certification forms along with copies of their (and in some cases their parents') previous year's income tax documents.

The deadline for application for financial aid is March 3.

The Financial Aid Office evaluates on-time applications and mails out offers of aid in April. Students who apply after the deadline are rarely funded.

## **Fellowships and Other Funding**

- **Fellowship Support**

These Central Campus Fellowships are awarded on the basis of merit and promise of productive scholarship. Types of university award and funding sources include central administered fellowships, department and campus gift and endowment funds, and departmental block grants. A fellowship is any payment to a student that is not salary or direct reimbursement for out-of-pocket expenses such as travel costs. All fellowships are processed by the Graduate Division.

With the exception of some continuing student fellowships, graduate students do not apply directly for central campus fellowships. The department nominates students for these awards and the decisions are made by the central faculty fellowship committee.

Please see the Graduate Division's Financial Support website for more information: <http://www.graddiv.ucsb.edu/financial/central-campus-fellowships>

- **Graduate Student Travel Grants**

PhD students, who have advanced to candidacy and have been invited to present a paper at a scholarly meeting or to present results before a distinguished audience, are eligible to receive support for one trip during their graduate career. Funds are available for transportation costs in the following areas: East Coast, Alaska, Hawaii, Canada, Mexico, Midwest, West Coast, California, overseas. Amounts are determined at the time of application. These grants are distributed by the Graduate Division and the Graduate advisor will notify everyone once the call for applications is sent out.

There is no deadline; funds will be given out until expended. Please see the Academic Senate site for more information: <https://senate.ucsb.edu/grants/>

## **California Residency**

***All eligible students must become California residents before the beginning of their second year as a graduate student.*** The office of the Registrar, using information provided by the student, decides the residency of new students. Information and applications are available on-line at <http://registrar.sa.ucsb.edu/residence.aspx>



There are four basic components of the residency rules:

- **Citizenship** Students must be an adult U.S. citizen, an adult immigrant, or an adult non-immigrant on an A, E, G, I, or K visa. *Foreign students on student visas never qualify as California residents.*
- **Continuing Presence** Students must be able to prove that they have been present in California for one full year prior to the residency determination date published each quarter in the Schedule of Classes.
- **Financial Independence** For purposes of residency determination, financial independence means a student's ability to meet his or her own expenses from self-generated funds under his or her control. A student will generally be considered financially independent if any of these conditions apply: 1) is at least 24 years of age by December 31 of the calendar year for which he or she is requesting residency; 2) is a veteran of the U.S. Armed Forces; 3) is a ward of the court OR both parents are deceased; 4) has legal dependents other than a spouse; 5) is married, or a graduate student and was not claimed as an income tax deduction by both parents or any other individual for the tax year immediately preceding the term for which he or she is requesting residency.

**NOTE: Teaching assistants and graduate student researchers employed at least 49% time are exempt from the financial independence criterion. All other criteria apply.**

- **Intent** Documented intent to make California the permanent residence is the final component in the residency rules. Relevant proof of intent might include: *registering to vote and voting in California; using a California permanent address; possessing a California driver's license and vehicle registration; paying or filing California taxes; having a lease or rental agreement for more than an academic year; having a savings and/or checking account; California employment, etc.* These steps should be taken immediately on arrival, before the beginning of classes.

**During the Spring quarter of your first year,** you will need to complete a Statement of Legal Residency and submit it to the Registrar's Office along with documentation proving that California residency has been established. It could take several weeks to process these forms; therefore, this should be taken care of several weeks prior to the beginning of Fall quarter.

Contact the Office of the Registrar (x3033) for counseling on residency questions. The final authority on residency matters rest with the Registrar. Students who leave the state, either on leave of absence or

with lapsed status, will have to file a residency statement when they return or reapply. Therefore, it is important to maintain as many of the aforementioned indications of residency as possible while away.

## **Tax Information**

A determination by the Internal Revenue Service affects domestic UC student employees (this will not affect foreign students, who are exempt from paying Social Security taxes) whose wages have previously been exempt from Federal Insurance Contribution Act (FICA or Social Security) taxes. Effective **April 1, 1995**, graduate students employed by UCSB must meet both of the following criteria to maintain their exemption from Social Security taxes:

1. Must have an employment appointment of 50% time or less,  
**and**
2. Be enrolled for a minimum of 12 units during the academic year (4 during summer).

This will affect students during the Summer (July-September) because ME students generally do not enroll for Summer session and, therefore, do not meet the course load requirement. When you lose your exemption because you do not satisfy the work and course load requirements, you will contribute 7.50% of your UC salary to an individual account in the University's Defined Contribution Plan as an alternative to paying Social Security taxes. In addition, you are required to pay the 1.45% tax for Medicare.

The 1986 Tax Reform Act eliminated the tax-exempt status of nearly all graduate student awards and earnings.

The new law separates the major categories of graduate student support:

1. Fellowships, scholarships, and grants are now fully taxable except for that portion that is used for the payment of tuition and "course required fees, books, supplies and equipment". Thus, a student receiving a fellowship, which includes a stipend, the payment of tuition and non-resident tuition supplement, will pay taxes only on the stipend. A student receiving only a stipend will subtract the amounts used from the stipend to pay tuition and non-resident tuition supplement, and pay taxes on the remainder. Non-resident tuition fellowships, fee payment fellowships, and DOCFO payments will not be taxable. The university neither withholds taxes on fellowships nor reports fellowship payments to the Federal Government. Students are

responsible for reporting fellowship income and arranging for estimated quarterly tax payments through the IRS office.

2. Any earnings received in return for any expectation of work on the part of the student are now fully taxable. The exemption formerly allowing exclusion from taxes of stipends earned while pursuing a degree requirement for teaching or research was repealed effective January 1, 1987. The amount the student pays from these earnings for fees, tuition, books, etc. may not be excluded. All earnings are fully taxable.

# V- Plans of Study

## **Goals of the Graduate Program**

The goals of the graduate program are to

- Provide students with solid knowledge in the fundamentals of the discipline;
- Provide students with skills and tools in the mathematical and physical sciences necessary to carry out advanced research in the discipline;
- Provide students with the state-of-the-art knowledge in their research field of interest;
- Develop graduate students' critical thinking and analysis skills, and their ability to carry out significant independent research in the chosen field.

## **Graduate Student Academic Advisor Selection Procedure**

The following is the procedure by which a new graduate student selects a faculty advisor to supervise his/her graduate education. The procedure allows a new graduate student to become acquainted with faculty research activities across the entire department before making a choice of advisor. Some new students may have already developed a relationship, either formally or informally, with a particular faculty member even before arriving on campus. However, selection of a permanent advisor is not complete until Winter quarter to allow each student opportunity to review all possible working relationships in the department. The academic advisor must be affiliated with the Mechanical Engineering department (0% appointment or higher).

- New graduate students attend the Faculty Research Presentations (ME 207) at the beginning of each Fall quarter. These are scheduled in the late afternoon, 2 days a week. Attendance for new graduate students is compulsory and is considered part of their responsibilities as graduate students, teaching assistants, fellows, research assistants, etc.
- At the end of the Faculty Research Presentations, new students are asked to select one or two areas of emphasis in which they are most interested and to identify possible choices of advisor. Students are encouraged to select at least two possible advisors.

- Students make appointments with those faculty members they possibly would like to work with.
- Faculty members in each area review the files of all the new students who expressed an interest in their research area and in them.
- Students meet with faculty and, thereafter, submit to the Staff Graduate Program Advisor a list of their preferred choices of faculty advisors in rank order. This list must be given to the Graduate Program Advisor by the end of the Fall Quarter. Students would be encouraged to select at least two choices in case their first choice does not work out.
- The student choices are reviewed by an *ad hoc* faculty committee consisting of the Graduate Advising Committee and the Graduate Admissions Chair. The committee will recommend advisors giving strong preference to the wishes of the student and the willingness of a faculty member to supervise the student.
- When a student's preference cannot be met and the student is unwilling to accept the supervisor assigned to him/her, the Departmental Graduate Advisor will discuss the matter with the student and faculty members involved and seek an agreement that is acceptable to all parties.
- Until a student is matched with an advisor, the Departmental Graduate Advisor will have the responsibility of advising the student.
- The target date for completion of this procedure will be the beginning of Winter Quarter each year to ensure the proper advising of the students. The student/faculty selection will be made known to the faculty at the beginning of the Winter Quarter. Some students may take longer than this to select an advisor and they will remain as advisees of the Graduate Advisor until they complete the above process.

## **Requirements for the Masters Degree**

The candidate for an MS Degree in Mechanical Engineering must fulfill all University requirements for the degree. These requirements are listed in the UCSB General Catalog and include 3 quarters of residency at UCSB, coursework requirements and the successful completion of a Thesis or a Project in lieu of passing a comprehensive examination. These requirements must all be fulfilled in a timely manner as discussed in the General Catalog. In addition, the student must fulfill the following departmental requirements for the MS Degree in Mechanical Engineering.

Two MS plans are available **Plan I** (Thesis) and **Plan II** (Project). After the permanent advisor has been assigned, the student should consult with him/her to establish a plan of study. If for some reason a permanent advisor has not been assigned, this study plan can be formulated in consultation with the Graduate Advisor. You can find the two study plans in the General Catalog entry for Mechanical Engineering, found here:

<https://my.sa.ucsb.edu/catalog/Current/CollegesDepartments/coe/mechengr.aspx?DeptTab=Courses>

The study plan must be filed two quarters before the student plans to graduate. The student should keep a copy of the study plan to consult. The student will be responsible for initiating the final degree check during the first two weeks of the quarter in which the student anticipates completing the requirements outlined on the plan. The final degree check is performed by the Graduate Program Advisor, using the MS Degree Check form upon notification by the student.

*All courses included on the student's study plan must be taken for a letter grade (when letter grades are an option). Students must earn a B- or better in these courses. An overall GPA of 3.0 or better is required.*

- **MS Plan I (Thesis):** Students who intend to complete an MS Thesis must formally establish a committee of three ladder faculty. At least two of members must be from the ME department. A Nomination of Thesis Committee Form must be completed and filed with the Graduate Division and the ME Graduate Program Advisor no later than one month prior to filing. The Nomination form can be found here:  
<http://www.graddiv.ucsb.edu/docs/default-source/academic-services-documents/formi-coi-05-19.pdf?sfvrsn=0>

This plan requires the completion of 42 units, including a written Thesis, which describes the results of original research conducted

under the supervision of a faculty advisor. **No more than 12 of these 42 units can be at the undergraduate upper-division level.** The minimum requirements for Plan I is as follows:

- 18 units of coursework in Mechanical Engineering and related fields selected from the core courses in Mechanical Engineering listed in Table I. Courses used to satisfy requirements of a previous degree are not acceptable.
  - 9 units of Science & Engineering courses: Courses must be at the graduate or upper-division undergraduate level (500-level courses, seminars, projects and research group studies as well as courses used to satisfy requirements for a previous degree are not acceptable). Course selection is subject to the approval of the Graduate Advisor. Once a student has selected a faculty research advisor, these courses will be chosen in consultation with him/her.
  - 3 units of Graduate Seminar: ME 200 (1 unit/quarter for 1 year).
  - 12 units of Thesis Research: ME 598 (MS Thesis Research).
- **MS Plan II (Courses and Project):** This plan requires the completion of 42 units including the completion of an MS project under the supervision of a faculty research advisor. **No more than 12 of these 42 units can be undergraduate upper-division level.** The minimum requirements for Plan II are as follows:
    - 18 units of coursework in Mechanical Engineering and related fields selected from the core courses in Mechanical Engineering listed in Table I. Courses used to satisfy requirements of a previous degree are not acceptable.
    - 18 units of Science & Engineering courses: Courses must be at the graduate or upper-division undergraduate level (500 level courses, seminars, projects and research group studies as well as courses used to satisfy requirements for a previous degree are not acceptable). Course selection is subject to the approval of the Graduate Advisor. Once a student has selected a faculty advisor, these courses will be chosen in consultation with the faculty advisor.
    - 3 units of Graduate Seminar: ME 200 (1 unit/quarter for 1 year).
    - 3 units for Completion of MS Project: ME 200P – Research project dealing with a topic approved by the faculty research

advisor. This project is subject to comprehensive examination, to be carried out by the faculty advisor.

## **Requirements for the PhD Degree**

Candidates for the PhD Degree in Mechanical Engineering must fulfill all University requirements for the degree. These requirements are listed in the UCSB Catalog and include 6 quarters of residency at UCSB, passing a doctoral screening examination, completion of original research under the supervision of a faculty committee, a successful dissertation defense, and filing the completed dissertation with the UCSB Library. These requirements must all be fulfilled in a timely manner as discussed in the General Catalog.

In addition, the following departmental requirements must be satisfied for the PhD Degree in Mechanical Engineering.

- **Completion of 36 units of approved courses:** A minimum GPA of 3.5 must be maintained in these courses throughout the period of study for the PhD. Students must earn a B- or better in these courses. These classes must be completed prior to the Dissertation Defense Examination. These classes can be used simultaneously to meet the requirements of a Master's Degree. Choice of courses is subject to approval by the student's faculty advisor. Students are required to record these courses on the official PhD Study Plan, which can be found here: <https://my.sa.ucsb.edu/catalog/Current/CollegesDepartments/coe/mechengr.aspx?DeptTab=Graduate>

### **The 36 units of approved courses are to consist of:**

- 18 units of core coursework in Mechanical Engineering and related fields. These classes must be chosen from the list of core classes listed in Table I.
- 9 units of approved coursework in Mechanical Engineering and related fields. Approved courses include all 200-level classes in Mechanical Engineering except seminars, projects and research group studies. In addition, all 100- and 200-level classes listed in Table II are approved courses.
- 9 units of Science, Engineering, or Mathematics courses. Courses must be at the graduate or upper-division undergraduate level in the form of lecture/discussion classes



(i.e. not seminars, projects or research group studies). 500-level courses are not acceptable. Please note only 12 units of upper-division undergraduate courses can be counted.

A student who has completed a Master's Degree or a degree recognized by the Graduate Division as equivalent to the Master's Degree, will generally receive credit in the amount 27 units. These 27 units are subject to petition and approval by the Graduate Admissions Chair. Otherwise, classes used to satisfy the requirements of a previous degree are not acceptable. A student who enters the PhD program with a Master's Degree in Mechanical Engineering (or recognized equivalent) and who is credited with 27 of the above 36 units must take the additional 9 course units only at the 200-level, as well as 3 units of ME 200. These units must be taken after the MS is conferred. Approved courses for these 9 units include all 200-level classes in Mechanical Engineering except seminars, projects and research group studies. In addition, the 200-level classes listed in Table II are approved courses for these additional 9 units. The classes selected to fulfill the required 9 units are subject to the approval of the Graduate Advisor to ensure depth and avoid duplication in conjunction with the student's prior coursework at UCSB or elsewhere.

- **Passing the PhD Oral Screening Examination:**  
Students must pass this exam within 9 months of entering the PhD program with a Master's Degree or within 15 months of entering the PhD program with a Bachelor's Degree or no degree. A student admitted to the MS/PhD program must pass the examination within 15 months. Normally, a student without an MS degree will have taken at least 15 units of approved course work prior to taking the PhD Oral Screening Examination.
- **Submission of an Approved PhD Study Plan:**  
Students must submit an approved PhD Study Plan prior to taking the PhD Oral Candidacy Examination. This document must be submitted to the Graduate Program Assistant and approved by the student's faculty advisor and the Departmental Graduate Advisor. If the original is outdated, a revised version of the Study Plan must be approved and submitted prior to the PhD Candidacy Examination. You can request an electronic copy of the PhD Study Plan from the Staff Graduate Advisor.
- **Passing the PhD Candidacy Examination:**  
Students must pass the PhD Candidacy Examination within 24 months after passing the PhD Oral Screening Examination.
- **Seminar Requirement:**

Students must enroll in and attend ME 200 for 3 quarters after being admitted into the PhD program.

- **Publication and Presentation:**

Students must submit at minimum one paper on their research to a refereed journal or refereed proceedings of a national conference (subject to approval by their advisor) prior to completing their dissertation. Students must provide the Staff Graduate Program Advisor with a copy of the abstract of the paper/proceedings, and the information needs to be noted on the Ph.D. Study Plan.

- **TA Requirement:**

Students must be appointed for two quarters as 50% in the ME Department after they advance to Doctoral Candidacy.

- **Departmental Degree Check:**

Students must initiate a final degree check at the beginning of the final quarter of study. The student should submit a request for the degree check in writing via email to the Staff Graduate Advisor.

## **Exams and Defense for the PhD Program**

- **PhD Oral Screening Examination:**

- Objectives:

- To determine if the student has a basic knowledge of at least two areas of emphasis in mechanical engineering.
- To determine if the student possesses the mathematical skills necessary for a deep understanding of the basic knowledge in the two areas of emphasis that are tested.
- To assess if the student has the analytical ability and critical thinking skills required to embark on independent research in one area of emphasis.

- Scope: The screening process is a series of two 45-minute oral examinations covering two areas of emphasis, chosen by the student in advance from the following areas (bioengineering and systems biology; computational science and engineering; dynamics and controls; micro/nanoscale physics; solid mechanics, materials and structures; and thermofluids engineering). The material covered by the exam is at the first-year graduate level. In each area, a list of topics and suggested textbook(s) covering the basic knowledge the student is expected to know in that area will be made available to student in advance.
- Timing: The exam is administered twice per year, once during the seventh week of the Fall quarter and once in the seventh week of the Spring quarter. Students entering with an MS must take the exam within their first year; students entering with a BS must take the exam no later than the first time it is offered in their second year.
- Exam Committee: All students are examined by the same faculty committee comprised of ten faculty members (two per area). The two faculty members in each area are responsible for making up the questions and administering all exams for their area.
- Format: The questions achieve the three objectives of the qualifying exam listed above. For uniformity and fairness, the same set of questions is asked of all the students examined in each area. The duration of the exam is up to 45 minutes per student.
- Exam Results: Test administrators note pass or fail with comments for each student. The exam results are discussed in caucus by members of the exam committee. The Faculty Graduate Advisor reports the results to all the students taking the exam via email within 24 hours. In the case where a student fails one or both areas of the exam, they must retake the exam the next time the exam is administered (in the area(s) failed). The exam may only be taken twice.

- **Doctoral Committee and Candidacy Examination:**

A PhD Committee shall consist of four or five members, which should be faculty at UCSB or at another university. At least three committee members shall be ME ladder-rank faculty with majority appointments in the ME Department at UCSB. At least one member must be from outside the ME department, with at most a minority appointment in ME. In rare cases, a highly qualified individual from

industry can be a committee member; in such cases a detailed technical biography or CV of the outside member must be submitted for review by the Faculty Graduate Advisor and by the ME Department Chair. The Chair of the Ph.D. Committee should be the student faculty advisor and should have a full-time, part-time or 0% appointment in the ME Department at UCSB. Exceptions to these rules regarding committee composition require the approval of the Faculty Graduate Advisor and by the ME Department Chair. To officially set up the PhD Committee the student should consult with the Staff Graduate Program Advisor. The **Committee Nomination Form I and Conflict of Interest (COI) form** need to be completed to officially set the PhD committee:

<http://www.graddiv.ucsb.edu/docs/default-source/academic-services-documents/formi-coi-05-19.pdf?sfvrsn=0>

Within 2 years after passing the Oral Screening Examination, the student must take the PhD Candidacy Examination. It is highly recommended, in consultation with the faculty advisor, that the student prepares a written proposal for a research program, which is to be given to the Doctoral Committee at least one week prior to the examination. The student must inform the Staff Graduate Advisor 3 weeks prior to the PhD Candidacy Examination of the time/date/place of the exam. The **PhD Form II needs** to be completed at the time of the exam:

<http://www.graddiv.ucsb.edu/docs/default-source/academic-services-documents/form-ii-10-17.pdf?sfvrsn=0>

The PhD Candidacy Examination consists of an oral presentation of the proposal before the Dissertation Committee. UCSB Graduate Division requires that all committee members be present for the exam. The dissertation proposal session will be open to all faculty members. Upon approval of the research project by the Doctoral Committee, the student will be allowed to advance to candidacy.

- **Dissertation and Defense:**

Following advancement to candidacy, the student completes the proposed research. Upon completion of the research, the student summarizes the work in a written dissertation, submits the dissertation to the Doctoral Committee, and defends the dissertation orally.

The Dissertation Defense Examination consists of a seminar (open to all members of the academic community) followed by a closed session with the examining Doctoral Committee. A public announcement by posted notice of the seminar must be made at

least one week in advance. The Staff Graduate Program Advisor must be informed of the time/date/place of the exam, and the **PhD Form III** needs to be completed and signed by all members at the defense:

<http://www.graddiv.ucsb.edu/docs/default-source/academic-services-documents/form-iii-10-17.pdf?sfvrsn=0>

The student must provide a complete draft of the dissertation to the Doctoral Committee at least three weeks in advance of the Dissertation Defense Examination.

Following the defense, the student must have one original of their final dissertation signed by their committee. The original, plus one copy of the title page, will be filed with Graduate Division, which issues an acceptance sheet. *The student must also submit a copy of the abstract and title page to the Staff Graduate Program Advisor.*

The Graduate Division Doctoral Degree Filing Checklist can be helpful in outlining their specific requirements:

<http://www.graddiv.ucsb.edu/academic/Filing-Your-Thesis-Dissertation-DMA-Document>

- **Normative Time:** Normative time is the number of twelve-month years considered to be a reasonable time for completion of a particular PhD program by a full-time student who matriculates with no deficiencies. The number of years of normative time for the PhD in the Department of Mechanical Engineering is six years. This time is measured from the time the student begins study at any level, and therefore includes the years spent in the MS program at UCSB.

The institution-wide degree deadline for PhD students is seven years from entering the UCSB graduate program. Students who exceed this time should check with the Graduate Advisor to determine what paperwork, if any, must be filed with the Graduate Division.

- **Probation:** PhD students are required to maintain a minimum grade point average of 3.5 in all upper-division and graduate courses. In addition, students are required to make continual progress towards the degree. If a student is past the three-year time-to-advancement for the PhD, or is past the six-year time-to-degree deadline, Graduate Division will send a letter of notification, require an Academic Progress Plan be submitted, and will ask for the department's recommendation on whether the student should remain on monitoring status, or be recommended for Probation.

After one quarter of probation, if the student's record is still below minimum, the department may recommend dismissal. This decision is based on both GPA and the recommendation of the student's faculty advisor or faculty member with knowledge of the student's research.

**Non-Resident Supplemental Tuition Reduction:** Non-resident Supplemental Tuition Reduction (NRT) is 100% for graduate doctoral students (international students or domestic non-residents who have not established California residency for tuition purposes) who have advanced to candidacy, subject to the understanding that a graduate doctoral candidate may receive the reduced non-resident tuition rate for a maximum of three years. Eligibility for the reduced non-resident tuition is measured in calendar years, and begins with the first academic quarter following advancement to candidacy. Leave of absence and unregistered quarters will not extend a student's eligibility. A student who continues to be enrolled or who re-enrolls three calendar years after advancing to candidacy will be charged the full non-resident rate in effect at the time.

# VI- Finishing

## Degree Checks

- **Masters Degree:** The Graduate Division initiates degree checks for Master's Degree students when the student turns in a thesis or when the department notifies them that a student has completed the MS project.
- **PhD Degree:** The Graduate Division initiates degree checks for PhD students when the student turns in a dissertation and/or when the department notifies them on a PhD Form III that a student has either defended the dissertation.

## Incompletes

Except for "thesis preparation" or "dissertation preparation" units, which are complete when the document is accepted, *no Incomplete (I) grade may appear on the transcript of a graduate degree award.* Lifting incompletes in future quarters can potentially cause problems with fees, and will not automatically trigger a second degree check. Students with incompletes must persist until they are sure the degree is awarded since, at present, there is no fail-safe mechanism to initiate another degree check.

## Fee Status

A student must be in a fee relationship (i.e. either registered or paying the filing fee) with the university the quarter he/she finishes all degree requirements. Fees paid for one quarter cover activities undertaken until the next quarter begins. Spring fees cover summer up until Fall quarter begins.

The filing fee is for the use of a student who is completing one final requirement for a degree. Students who are registered during the quarter they complete requirements for the degree need not pay the filing fee. Paying the filing fee terminates graduate status. Therefore, it may be used only by PhD students and terminal Master's students. Master's students use it if all their coursework is complete but they still need to file a thesis. PhD students use the filing fee to file and defend dissertations.

The filing fee is always half the amount of the registration fee. Do not pay it unless you are certain you will finish in the current quarter (we

generally ask you to pay it when you are just about ready to file electronically) because the filing fee terminates graduate status. Students may not carry forward a filing fee from one quarter to the next. If a student pays the filing fee but does not finish, he/she will lapse student status. Reinstatement may then be required, along with re-advancement, at the committee's discretion. No leaves will be granted following lapses or after "filing fee leaves" in which the thesis or dissertation is not filed.

## **Degree Dates**

Degrees are granted four times a year, the last day of each quarter including summer session. The student must have finished all requirements by the final Friday of the quarter in order to get a degree dated that quarter. A dissertation filed between quarters (in late August or during the Winter break, for example) will not cost the student additional fees if they were enrolled the previous quarter. However, the degree will be dated as of the *end of the next quarter*.

## **Graduation Ceremony**

The Graduate Division's graduation ceremony is one of seven coordinated by representatives of the colleges and the Chancellor's Office. Students are eligible to participate in the June ceremony even if they have not yet completed all of the requirements for the degree, provided that both they and their departments fully expect them to complete all requirements within the near future. All graduate students who want to participate in the Graduate Division commencement ceremony must Register online at the following site: <https://www.graddiv.ucsb.edu/academic/commencement>

Master's candidates show up to the ceremony with their cap and gown in hand, and write their name on a card to hand to the announcer. PhD students are traditionally presented by their mentors/research advisors. Their participation in commencement is logistically more complicated than Master's candidates because we have to organize faculty for them, as well as produce a printed program with dissertation titles.

## **Diplomas and Transcripts**

After the Graduate Division finishes a degree check, it notifies the Registrar who posts the degree to the transcript and orders diplomas. Degree checks and posting take 6-8 weeks from the end of the quarter. Students wishing to order transcripts which show the degree awarded should mark their order form "holding for posting of degree."



As part of the degree check process, Graduate Division notifies the student of the degree award and sends an order form by which the student can inform the Registrar where to send the diploma when it arrives. Students who are staying in the Santa Barbara area may pick up their diplomas in person from the Registrar's Office.

# VII- Petitions

## Leaves of Absence

Students leave school for a variety of reasons and for varying lengths of time. Those who seek and receive approved leaves of absence are guaranteed a spot in their department when they are ready to return. Those who drop out without first seeking an approved leave of absence will need to reapply and be evaluated with the new applicants.

A specific timetable stating when the various stages of work will be completed must be submitted to Graduate Division with a request for leave: <http://www.graddiv.ucsb.edu/academic/forms-petitions/leave-of-absence>

Leaves of Absence may only be granted under extraordinary circumstances and must be approved by the Graduate Advisor prior to petitioning Graduate Division.

In general, foreign students should not take leave until they have either advanced to candidacy for the PhD or completed their coursework and need to work on a Master's thesis. For visa purposes, they are not supposed to take leaves for personal or financial reasons if they are staying in the U.S., although those reasons are acceptable if they exit the U.S. for the duration of the leave. Foreign students who do not register jeopardize their visas if they fail to get an approved leave of absence.

UCSB has historically allowed students who were registered or on a filing leave in the preceding spring to file for their degree over the summer without having to register for Summer Sessions. Due to immigration restrictions OISS has notified us that this is no longer permitted for international students who are filing their final degree over the summer. To protect our international graduate students who are receiving their final degrees over the summer from being charged with unlawful presence, they will need a summer registration status, unless they are not applying for OPT and will leave the country within 60 days after the last day of spring quarter. The majority of our international students apply for OPT, so this new requirement will affect most of this population. More info can be found here: <http://www.graddiv.ucsb.edu/academic/forms-petitions/leave-of-absence/summer-filing-quarter>

Graduate advisors and students alike should think carefully about the timing of leave requests. A "student" is one who pays fees and registers. Persons on leave are not, technically speaking, students.

Student loans, visas, university housing, access to career and counseling services, student health, financial aid, etc. are either unavailable or available only on fee-for-service bases to unregistered persons.

To return from a leave of absence, the student notifies the Graduate Division in writing of their intent to return approximately 4 weeks before the beginning of the quarter in which they wish to register. This action triggers the preparation of registration and billing materials.

## **Reinstatement from Lapsed Status**

Students who fail to pay fees and/or register by the third week of the quarter lose student status. They may petition for reinstatement. Faculty Graduate Advisors evaluate a reinstatement petition with the same care they give new applications. Petitions for reinstatement are available in the Graduate Division and on-line at:  
<http://www.graddiv.ucsb.edu/academic/forms-petitions/lapsed-status-reinstatement>

## **Withdrawal**

Leaving the university after the quarter begins constitutes "withdrawal." Students must file a withdrawal petition with the Registrar; otherwise all the classes in which they are registered will be recorded as "F" grades. In emergencies when students cannot process petitions for themselves, the Office of Student Life will handle withdrawals. Early in the quarter, speed is important to assure maximum refund of fees.

## **Drop/Add and Change of Grading Option**

Adjustments to a student's schedule are made on GOLD or by petition, which originate in the Registrar's Office. During approximately the first week of classes, schedule adjustments are made without charge. After that time, a \$3.00 fee applies.

Graduate students may petition to change grading options or to drop classes until the last day of classes. Classes may be added until the 15<sup>th</sup> day of instruction. From those deadlines until grades are posted, students may still petition but must seek the Dean of Graduate Division's approval in addition to the usual approvals. Once grades are posted, retroactive changes to the permanent record require Graduate Division approval.

## **Incompletes**

Students must file a petition in the Registrar's Office prior to the last day of the quarter to receive an incomplete grade. If this petition is not on file and an instructor submits an "I" grade, the Registrar's computer will enter the grade as "F". Automatic F's are permanent on the student's record and should be avoided whenever possible. Submitting no grade at all will result in a blank space on the transcript, but not an "I" or an "F".

Incompletes convert to F's at the end of the quarter following the original class unless the instructor submits a grade to the Registrar. An instructor may extend the "I" for additional quarters by requesting the extension in writing directly to the Registrar's Office.

Advance degrees are not awarded to students carrying incompletes. When a student lifts an incomplete while on leave or during summer, without registering again, the Graduate Division is unaware that they should initiate another degree check. Students who are through with coursework but carrying incompletes, must inform Graduate Division when they wish another degree check to be done.

## **Second Masters Degree**

Students wishing to earn a second Master's Degree must petition the Graduate Division. In addition to the standard student petition, a second Master's Degree requires completion of a separate form comparing and contrasting the study plans of the first and second Master's Degrees. The Graduate Division must be convinced there is no significant overlap between the two degrees before it will approve a second Master's petition.

## **Extension and Transfer of Credit**

Only Extension courses approved in advance from both the academic department and Graduate Division for transfer of credit, and taken while a student is in graduate standing, will be accepted for graduate credit. The student must petition before enrollment for approval and then petition again for transfer of credit when the class is completed. The second petition must be accompanied by an Extension transcript showing the grade earned. The second petition will be processed without additional fees.

Upper division and graduate courses may be transferred to UCSB if the student was in a graduate program when the courses were completed. With approval from the major department and the Graduate Division, up to 8 quarter units of credits for courses completed with a grade of B

or better may be transferred from an accredited college other than another branch of the University of California. Up to 12 quarter units may be transferred from another UC campus. Such transferred units will be treated as Pass/Not Pass, upper division units, and will not be computed into the UCSB grade point average. Units counted for a degree awarded by another institution are not transferable.

No credit will be allowed for any course taken as an undergraduate or as a graduate in non-degree status, nor will credit toward an advanced degree be given for courses completed in a teaching credential or translator-interpreter program before the student was admitted to a degree program.

After students have been in residence at UCSB for at least one quarter, they may petition to transfer credit under the limitations described above. Before approving a transfer of credit, the Graduate Advisor should be satisfied that the courses being transferred, particularly if they are substitutions for required or core courses, are in fact equivalent to the department's own offerings. Petitions are available in departments and in the Graduate Division.

## **VIII- Graduate Student Disputes and Grievances**

Occasionally, disagreements about decisions, deadlines, policies, procedures, and issues of academic judgment may arise among members of the ME Graduate Program. Such issues may include a conflict between a student and a research advisor, or concerns regarding TA responsibilities.

As in all such disputes, involved parties should attempt to resolve these issues internally and come to a collegial solution. The parties involved should, therefore, first meet in an effort to resolve the dispute informally. If the student feels that they are unable to achieve an internal resolution and if areas of disagreement still remain after an informal meeting, then the student is encouraged to informally and confidentially consult with the Faculty Graduate Advisor and may resort to the formal grievance procedure described as follows.

First, a written grievance should be addressed to the department Graduate Advisor. The written grievance should describe the pertinent facts, request involvement, and possibly identify a desired outcome that is sought by the student. If the Faculty Graduate Advisor is involved in the dispute, then the grievance should be addressed to the Department Chair. The grievance should be filed within a few weeks from the occurrence of the events giving rise to the grievance, or from the time at which the student should reasonably have become aware of the grievance.

Second, upon receiving the grievance, the department will act to attempt to resolve it. This will involve disclosing the nature and origin of the grievance to the other party involved. The Faculty Graduate Advisor or the Department Chair will meet with the student on a timely basis after receiving the grievance. The department will then follow-up with the student in writing.

If the student finds the department's resolution unacceptable, or if the student decides not to resort to the grievance procedure outlined in this document, then the student may resort to other University grievance procedures. The UCSB Office of the Ombudsman (see online information at: <https://ombuds.ucsb.edu>) is a confidential, impartial, and informal resource to help students identify and clarify their options.

## **IX- Inter-Campus Exchange Program for Graduate Students (IEPGS)**

Occasionally UCSB graduate students wish to study temporarily on another UC campus. If a student desires to take a course not offered at UCSB, wishes to study under the guidance of a specialist in residence at another UC campus, or needs to have continuing access to library holdings or facilities not available at UCSB, they may apply to the Inter Campus Exchange Program. Approvals are required from the Department Chairs and the Graduate Deans on both campuses. More information and applications are available in the Graduate Division's site:

<http://www.graddiv.ucsb.edu/academic/forms-petitions/intercampus-exchange-eap>

Separate applications are required for each quarter and must be filed with the Graduate Division at least four weeks before the beginning of the quarter in which the student wishes to make the exchange.

The student pays the fees at UCSB and files registration materials at both campuses. This procedure maintains academic residence at UCSB even though the student is not physically present. Classes taken on the other campus appear on the UCSB transcript and are figured into the UCSB grade point average. Ordinarily, the Graduate Division will not process an Inter Campus Exchange petition until the student has completed at least one year satisfactorily on this campus.

# X- Expanded Resources for Students

The Division of Student Affairs provides essential support services and resources to help UCSB students handle the challenges of university life:

## 1. Help during exams

Students with disabilities may request academic accommodations for exams online through the UCSB Disabled Students Program at <http://dsp.sa.ucsb.edu/>. Please make your requests for exam accommodations through the online system as early in the quarter as possible to ensure arrangement.

## 2. Managing stress

Personal concerns such as stress, anxiety, relationships, depression, cultural differences, can interfere with the ability of students to succeed and thrive. For helpful resources, please contact UCSB Counseling & Psychological Services (CAPS) at 805-893-4411 or visit <http://caps.sa.ucsb.edu/>

## 3. Responsible scholarship

Honesty and integrity in all academic work is essential for a valuable educational experience. The Office of Judicial Affairs has policies, tips, and resources for proper citation use, recognizing actions considered to be cheating or other forms of academic theft, and students' responsibilities, available on their website at: <http://studentconduct.sa.ucsb.edu/>

Students are responsible for educating themselves on the policies and to abide by them.

Furthermore, for general academic support, encourage students to visit Campus Learning Assistance Services (CLAS) early and often. CLAS offers instructional groups, drop-in tutoring, writing and ESL services, skills workshops and one-on-one consultations. CLAS is located on the third floor of the Student Resource Building, or visit <http://clas.sa.ucsb.edu>.

## 4. Mental Health Statement

Students may feel overwhelmed or depressed with coursework, stress and/or other personal challenges. If you find yourself, or another student, in need of support, please do not hesitate to



reach out to Counseling and Psychological Services (CAPS), 24/7 at (805) 893-4411. <http://caps.sa.ucsb.edu/>

## 5. Gender and Sex Discrimination Policy and Student Support

Under Title IX, university students are protected from harassment and discrimination based on gender and sex. If a student feels uncomfortable or in need of support at any time related to their gender, sex, and/or sexual orientation, please contact your TA and/or course instructor immediately. If a student would like to disclose information related to pronouns, name changes, or identities, we encourage you to do so. UCSB's Resource Center for Sexual and Gender Diversity on the 3rd floor of the Student Resource Building is also available to advocate and be of and support to students:

<http://wgse.sa.ucsb.edu/RCSGD/home>

# Core and Minor Course Tables

## TABLE I

### CORE COURSES

<b>BIOENGINEERING &amp; SYSTEMS BIOLOGY</b>	
<b>APPROVED COURSES:</b>	
ENGR 220A	Molecular Bioengineering
ENGR 220B	Cellular Bioengineering

**Note 1:** There is a strong and growing research focus at UCSB in Systems Biology and in Energy Efficiency. Several faculty members are active in these fields as well as part of the Center for Control, Dynamical Systems and Computation (CCDC) and the Institute for Energy Efficiency (IEE). Students interested in those fields are encouraged to discuss with their advisor which classes best fit their goals.

The **optional PhD bioengineering emphasis** for doctoral students already enrolled at UCSB in both engineering and science departments and programs. The emphasis includes structured curriculum aimed at teaching biology to physical scientists at several levels (molecular, cellular, and tissue) as well as both a student-run and invited seminar series aimed at providing a community for students engaged in bioengineering related research on campus. The courses are open to all graduate students interested in bioengineering.

## COMPUTATIONAL SCIENCE AND ENGINEERING

### CORE COURSES:

#### **NUMERICAL METHODS**

ME 210A	Matrix Analysis and Computation
ME 210B	Numerical Solution of ODEs
ME 210C	Numerical Solution of PDEs-Finite Difference Methods
ME 210D	Numerical Solution of PDEs-Finite Element Methods
ME 216	Level Set Methods and their Applications

#### **PARALLEL COMPUTING**

CS 240A or B	Parallel Computing and Program Parallelization
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#### **APPLIED MATHEMATICS**

ME 244A,B	Advanced Theoretical Methods in Engineering
Math 214A	Ordinary Differential Equations
Math 214B	Chaotic Dynamics and Bifurcation Theory
Math 215A	Partial Differential Equations
Math 215B	Fourier Series and Numerical Methods

Credit will not be given for more than one of the above applied mathematics sequences. Advanced courses may be substituted, with approval, as follows:

Instead of Math 214:

Math 243A, B	Ordinary Differential Equations
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Instead of Math 215:

Math 246A, B	Partial Differential Equations
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### **Note 2: Optional Graduate Degree Emphasis in Computational Science and Engineering**

The Departments of Chemical Engineering, Computer Science, Electrical and Computer Engineering, Math, and ME offer an interdisciplinary master's and Ph.D. degree emphasis in computational science and engineering (CSE).

CSE is a rapidly growing multidisciplinary area with connections to the sciences, engineering, mathematics, and computer science. Computer models and simulations have become an important part of the research repertoire, supplementing (and in some cases replacing) experimentation. Going from application area to computational results requires domain expertise, mathematical modeling, numerical analysis, algorithm development, software implementation, program execution, analysis, validation, and visualization of results. CSE addresses these issues.

## **DYNAMIC SYSTEMS, CONTROL AND ROBOTICS**

### **CORE COURSES:**

ME 201	Advanced Dynamics
ME 215A	Applied Dynamical Systems I
ME 215B	Applied Dynamical Systems II
ME 236	Nonlinear Control Systems
ME 237	Nonlinear Control Design
ME 243A	Linear Systems I
ME 243B	Linear Systems II

## **MICRO/NANOSCALE SYSTEMS**

### **CORE COURSES:**

ME 257	Introduction to Multiphysics Simulation
ME 291A	Physics of Transducers
ME 292	Design of Transducers
ECE 220A	Semiconductor Manufacturing

**Note 3:** Students in micro/nanoscale systems frequently specialize in a secondary area, taking core classes from Dynamics and Control; Solids, Structures, and Materials; or Fluid Mechanics. As this research area is interdisciplinary, courses may also be found in other departments (200 level or above). These should be chosen with the approval of your faculty advisor once you have identified a research area. Final approval for these courses is given by the Graduate Advisor.

## **SOLID MECHANICS, STRUCTURES AND MATERIALS**

### **CORE COURSES:**

ME 219	Continuum Mechanics
ME 230	Elasticity
ME 262	Thermodynamics of Materials
ME 264	Mechanical Behavior of Materials
ME 265	Composite Materials
ME 271	Finite Element Structural Analysis
ME 275	Fracture Mechanics

## **THERMOFLUID SCIENCES**

### **CORE COURSES:**

ME 220A,B	Fundamentals of Fluid Mechanics
ME 221	Advanced Viscous Flow
ME 225PL	Wind & Tidal Energy Extraction
ME 240	Convective Heat Transfer
ME 252 A,B	Computational Fluid Dynamics

## **Table II**

### **Approved Courses**

The approved courses for the PhD are all ME 200-level courses (except seminars, projects and research group studies) plus those listed below. The entire list in Table I are approved courses as well. Classes are listed below by area for convenience.

<b>BIOENGINEERING &amp; SYSTEMS BIOLOGY</b>	
<b>APPROVED COURSES:</b>	
ENGR 220C	Tissue and Systems Bioengineering
ME 246	Molecular and Cellular Biomechanics
ME 211	Pattern Formation and Self-Organization
ME 210B	Numerical Simulation
ME 215A	Applied Dynamical Systems I
ME 219	Continuum Mechanics
CHE 255	Methods in Systems Biology
ECE 235	Stochastic Processes in Engineering
CHE 202	Biomaterials and Biosurfaces
CHE 238A/B	Rheology of Complex Fluids

<b>COMPUTATIONAL SCIENCE AND ENGINEERING</b>	
<b>APPROVED COURSES:</b>	
MATRL 228	Computational Materials
CHE 213	Computational Methods in Materials Science
CHE 220A,B	Advanced Transport Processes-Laminar Flow & Convection
CHE 220C	Advanced Transport Processes-Mass Transfer
CHE 220D	Advanced Transport Processes-Turbulence Theory
Math 243C	Ordinary Differential Equations
Math 244C	Computational Fluid Dynamics
Math 246C	Partial Differential Equations
ECE 271A	Principles of Optimization
ECE 271B	Numerical Optimization Methods
ECE 271C	Dynamic Optimization

## **DYNAMIC SYSTEMS, CONTROL AND ROBOTICS**

### **APPROVED COURSES:**

ME 179 P,L	Introduction to Robotics
Math 118 A,B,C	Introduction to Real Analysis
Math 122 A,B	Introduction to Theory of Complex Variables
Math 147 A,B	Metric Differential Geometry
Math 201 A,B,C	Real Analysis
Math 202 A,B,C	Complex Analysis

## **MICRO/NANOSCALE SYSTEMS**

### **APPROVED COURSES:**

141B	MEMS Semiconductor Processing and Device Characterization (with Lab)
MCDB 101A	Molecular Genetics I: Prokaryotes.
Phys 141	Optics
BMSE 216A	Spectroscopy of Biological Molecules

Students in micro/nanoscale systems frequently specialize in a secondary area, taking core classes from Dynamics and Control; Solids, Structures, and Materials; or Fluid Mechanics. As this research area is interdisciplinary, courses may also be found in other departments (200 level or above). These should be chosen with the approval of your faculty advisor once you have identified a research area. Final approval for these courses is given by the Graduate Advisor.

## **SOLID MECHANICS, STRUCTURES AND MATERIALS**

### **APPROVED COURSES:**

ME 162	Introduction to Elasticity
ME 167	Structural Analysis
ME 168	Applied Finite Element Analysis
ME 185	Materials in Engineering
ME 186	Manufacturing and Materials
Math 122 A,B	Introduction to Theory of Complex Variables
Math 202 A,B,C	Complex Analysis
MATRL 228	Computational Materials
CHE 230 A,B,C	Advanced Theoretical Methods in Engineering
MATRL 220	Mechanical Behavior of Materials
MATRL 221	Introduction to Structural Materials
MATRL 237	Advanced Deformation and Fracture
MATRL 251 A	Processing of Inorganic Mtrls.
MATRL 251B	Densification & Microstructural Control
MATRL 261	Composite Materials
MATRL 262	Structural Ceramics
MATRL 271A	Synthesis and Properties of Macromolecules
MATRL 271B	Structure and Characterization of Complex Fluids
MATRL 271C	Properties of Macromolecules

## **THERMOFLUID SCIENCES**

### **APPROVED COURSES:**

CH E 160	Introduction to Polymer Science
CH E 220A,B,C	Advanced Transport Processes
CH E 222A,B	Colloid and Interfaces I, II
CH E 230D	Numerical Methods in Chemical Engineering
CH E 238A,B	Rheology of Polymeric Fluids
CH E 239	Light Scattering in Complex Fluids
ECE 235	Stochastic Processes in Engineering
MATRL 280	Structure and Characterization of Complex Fluids
Phys 141	Optics
Phys 144	Physics of Complex Fluids