GRADUATE STUDENT MANUAL

FALL 2015

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WHO'S WHO IN THE MATERIALS DEPARTMENT

FACULTY

	Professor	Joint Appt.	Area
*	Tresa M. Pollock (Chair, ICMR Director)	—	Structural
*	Michael L. Chabinyc (Associate Chair)	—	Macro/Bio/Electr/Photonic
*	Guillermo C. Bazan (CPOS Director)	Chem	Macro/Biomolecular
	Matthew R. Begley	ME	Structural
	John Bowers (IEE/CEEM Director)	ECE	Electronic/Photonic
	Larry A. Coldren (OTC Director)	ECE	Electronic/Photonic
*	Steven P. DenBaars (SSLEEC Co-director)	ECE	Electronic/Photonic
*	Daniel S. Gianola	—	Structural
*	Craig Hawker (CNSI/DMI/MRL Director)	Chem	Macro/Biomolecular
	Alan J. Heeger	Phys	Macro/Bio/Electronic
	Jacob N. Israelachvili	ChE	Macro/Biomolecular
*	Carlos G. Levi (Dept. Graduate Advisor)	ME	Structural/Inorganic
*	Robert M. McMeeking	ME	Structural
*	Shuji Nakamura (SSLEEC Co-director)	ECE	Electronic/Photonic
	Chris Palmstrøm	ECE	Electronic/Photonic
	Philip A. Pincus (BMSE Director)	Phys/BMSE	Macro/Biomolecular
*	Cyrus R. Safinya	Phys/BMSE	Macro/Biomolecular
*	Omar Saleh	BMSE	Macro/Biomolecular
*	Ram Seshadri (MRL Co-Director)	Chem	Inorganic
	Rachel A. Segalman	Chem E	Macro/Biomolecular
*	James S. Speck (ICWBS Director)	—	Electronic/Photonic
*	Susanne Stemmer	—	Inorganic/Electronic/Photonic
	Galen D. Stucky	Chem	Inorganic/Electronic
*	Chris Van de Walle	—	Electronic/Photonic
*	Anton Van der Ven	—	Structural/Inorganic
	Claude Weisbuch	—	Electronic/Photonic
*	Stephen D. Wilson	—	Inorganic
*	Frank W. Zok (COEC Director)	—	Structural

** Majority appointment in Materials*

Please see Departmental Website (www.materials.ucsb.edu) for Emeriti and Affiliated Faculty.

TECHNICAL STAFF

Rachel Behrens	Polymer Lab Manager
Brian Carralejo	Metal Organic Chemical Vapor Deposition Laboratory
Mark Cornish	Microscopy (SEM)/ Specimen Preparation
Mike Edwards	Computer Consultant
John English	Molecular Beam Epitaxy (MBE) Laboratory (Part time)
Jerry Hu	Spectroscopy Lab Manager
Michael Iza	Metal Organic Chemical Vapor Deposition Laboratory
Budd Jamieson	Computer Consultant
Stephan Krämer	FIB, TEM and Microscopy
Youli Li	X-ray Lab Manager
Tom Mates	SIMS, XPS and Atom Probe
Peter Maxwell	Composites and Nanoindentation Labs
Kurt Olsson	Molecular Beam Epitaxy (MBE) Laboratory
Deryck Stave	Structural Materials Processing Laboratory Ceramics Processing Lab/Sample Preparation
Amanda Strom	TEMPO Lab Manager
David Whitlatch	MOCVD

ADMINISTRATIVE STAFF

Dawn McTague	Management Services Officer
Mary E. Cummings	Associate Manager
Travis Dadigian	Contracts & Grants/Payroll Personnel
Gabrielle Dunne	Purchasing Coordinator
Jocelyn Guzman	Graduate Program Coordinator (GPC)*
Tawny Hernandez	Financial Analyst
Aldir Lopez	Assistant to Professors Denbaars, Nakamura, Speck, Van de Walle and Weisbuch
Joanne McNie	Assistant to Professors Chabinyc, Pincus, Safinya, Saleh, Stemmer and Seshadri
Tara Owens	Financial Manager, SSLEC
Yasmin Sharawy	Receptionist/Academic Personnel Coordinator
Alison Todhunter	Assistant to Professors Levi, Pollock, Van der Ven and Zok
Yukina Warner	Corporate Programs Manager, SSLEC

* Please note the Graduate Program Coordinator is referred to in the Graduate Division literature as the Graduate Program Assistant.

INTRODUCTION

THE UC SYSTEM

The University of California was chartered as a land-grant college in 1868. Ten UC campuses are now situated throughout the state, in Berkeley, Davis, Irvine, Los Angeles, Merced, Riverside, San Diego, San Francisco, Santa Barbara, and Santa Cruz. Together, the campuses have over 190,000 faculty and staff members and a current enrollment of about 233,000 students. About one-fourth of UC students are studying at the graduate and professional level. The University also operates a variety of laboratories, agricultural field stations, extension offices, and other facilities. The University is the primary state-supported academic agency for research, and the pre-eminent system of public higher education in the country.

The UC system is governed by the Regents of the University of California, a corporate board of 26 members. The Regents in turn, delegate authority to the President, the Chancellor of each campus, and to the Academic Senate, which represents the faculty.

THE UCSB CAMPUS

The UCSB campus was established in 1944 and moved to its present location on the site of a former US Marine base in 1953. The 989 acre grounds include the main campus, the San Clemente, Santa Ynez and Storke apartments and the West campus. The student community of Isla Vista is surrounded by the UCSB campus and the Pacific Ocean.

Within its beautiful setting, the University of California, Santa Barbara is a major research institution offering undergraduate and graduate education in the arts, humanities, the social sciences, and science and technology. 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 about 21,700 of whom 3,000 are at the graduate level. The UCSB faculty numbers over 1,200 and includes 6 Nobel laureates, recipients of the National Medal of Science, members of the National Academy of Sciences, the National Academy of Engineering, the American Academy of Arts and Sciences, Fellows of the Royal Society of London and the Royal Academy of Engineering, numerous Guggenheim fellows, Fulbright scholars, and fellows of the National Endowments for the Arts and for the Humanities.

The UCSB campus has 6 academic units: the College of Creative Studies, the College of Engineering, the College of Letters and Sciences, the Gevirtz Graduate School of Education, the Donald Bren School of Environmental Science & Management and the Graduate Division.

THE COLLEGE OF ENGINEERING

The College of Engineering is the second largest undergraduate college at UCSB, including approximately 1320 undergraduate students and 680 graduate students. In recent years, the College has become one of the most dynamic engineering schools in the nation. It currently has a full-time, permanent faculty of 130 and consists of five degree-granting departments:

- Chemical Engineering
- Computer Science
- Electrical and Computer Engineering
- Materials (Graduate Only)
- Mechanical Engineering

Graduate students may also benefit from participating in the following multidisciplinary educational programs. (Please note that credit for courses taken under these programs toward the academic programs in Materials is limited. Consult with the Graduate Office in Materials before taking any of these courses.):

- Biomolecular Science and Engineering (BMSE)
- Computer Engineering Program (CE)
- Media Arts and Technology (MATP)
- Technology Management Program (TMP)

The College of Engineering is home to major funded Research Centers and Institutes, focused on Materials, some international in scope, including:

- California NanoSystems Institute (CNSI)
- Center for Multifunctional Materials and Structures (CMMS)
- Center for Polymers and Organic Solids (CPOS)
- Dow Materials Institute (DMI)
- Institute for Collaborative Biotechnologies (ICB)
- Institute for Energy Efficiency (IEE)
- Institute for Multiscale Materials Science (IMMS)
- Interdisciplinary Center for Wide Band-Gap Semiconductors
- International Center for Materials Research (ICMR) – an NSF-funded IMI
- Materials Research Laboratory (MRL) — an NSF-funded MRSEC
- Mitsubishi Chemical Center for Advanced Materials (MCCAM)
- Optoelectronics Technology Center (OTC)
- Solid State Lighting and Energy Center (SSLEC)
- SRC Nonclassical CMOS Research Center
- UCSB Nanofabrication Research Center
  - UCSB Node of the National Nanofabrication Infrastructure Network (NNIN)

THE MATERIALS DEPARTMENT

The Materials Department at UCSB was established as a Graduate Program in 1985, and as an independent department in early 1987, building on existing research programs in the College of Engineering as well as the Physics and Chemistry Departments. The Department was conceptualized and built under two basic guidelines:

- to educate graduate students in advanced materials and
- to introduce them to novel ways of doing research in a collaborative, multidisciplinary environment.

For the purposes of the academic program the Department is organized into four distinct but interconnected areas specializing in Electronic/Photonic materials, Macro-/Bio-molecular materials, Structural materials and Inorganic materials. Faculty, postdoctoral researchers, and students in the various specialties collaborate within and across these areas. Currently, the Materials Department has approximately 150 graduate students and 28 faculty members, many of who have joint appointments with other departments (page 4). In addition, approximately 40 postdoctoral associates and visiting researchers are affiliated with the department in any given year.

GRADUATE PROGRAM INFORMATION

PROGRAM OF STUDY

The Materials Department offers programs leading to the Ph.D. degree with specializations in the following major areas: Electronic/Photonic Materials (compound semiconductors, electronic oxides, quantum structures and optoelectronic materials); Inorganic Materials (ferroelectrics, thermoelectrics, battery/energy storage, optical, magnetic and strongly correlated materials); Macro/Biomolecular Materials (self-assembling polymers, biopolymers, biomembranes, and organic photovoltaics); and Structural Materials (materials for advanced energy and transportation systems, lightweight and threat protection structures, mechanics of functional and biological systems).

The curriculum in each area has the flexibility needed to provide multidisciplinary educational opportunities in the field of advanced materials, encompassing topics such as optoelectronic devices, semiconductor oxides, biomolecular systems and high temperature composites. Materials synthesis, processing and characterization feature prominently with courses in the processing of semiconductor materials, polymers and organic materials, alloys, ceramics, composites, as well as advanced topics in electron microscopy, spectroscopy and structural tomography. Programs of study and research are individually tailored to accommodate research needs and student interest. Multidisciplinary education is strongly encouraged by means of joint faculty supervision of research and by the selection of courses. Students are also encouraged to cross over traditional boundaries into other departments on campus (for example, Electrical and Computer Engineering, Mechanical Engineering, Chemical Engineering, Biological Sciences, Chemistry and Biochemistry, and Physics) through collaboration and taking courses in those departments as appropriate. However, there are limitations to the number of courses that can be taken outside the department and counted for credit toward the Ph.D. in Materials (see coursework under Ph.D. Program). Please check with the GPC when you file your program of study. There is no foreign language requirement but all students are encouraged to explore opportunities for international research experiences at one of our collaborating institutions.

The Materials Department does not require completion of an M.S. degree before advancing to the Ph.D. Students interested in terminating their studies at the M.S. level should read the corresponding section of this manual below.

ADVISING AND ACADEMIC AFFAIRS

Decisions regarding the M.S./Ph.D. program and graduate student affairs reside with the Academic Affairs Committee (AAC). This committee consists of four faculty members, including the Departmental Graduate Advisor and the Department Chair. The committee is responsible for approving study plans as well as examination and dissertation committees upon consultation with the student and research advisor(s). The committee is also responsible for reviewing all petitions regarding examinations and credit for courses taken elsewhere. It is also the focus for discussions and recommendations concerning improvements in the graduate curriculum and examination procedures.

Each student must select a research advisor **within the first quarter of enrollment**, preferably earlier, based on mutual research interests and availability of research assistantships. Joint research advising by two faculty members is strongly encouraged to ensure that research programs have a strong multidisciplinary character. Selecting a co-advisor can be done at any time, depending on the research topic selected by the student.

UCSB Graduate Handbook

Because the Materials Graduate Program is designed primarily for doctoral students, this document focuses on the specific degree requirements for the Ph.D. degree. A brief description of the M.S. Program is given below for students interested in terminating at this level. (There is a separate manual for students in the BS/MS track, which is only available to UCSB undergraduates in the Electrical, Chemical and Mechanical Engineering BS programs, as well as to BS/BA students in Chemistry.) Additional relevant information can be found in the UCSB Graduate Policies and Procedures Handbook, available online at www.graddiv.ucsb.edu/handbook/.

MASTER'S PROGRAM

Completion of an M.S. degree on the way to the Ph.D. is not required unless there are special circumstances like a change in research topic. Students who elect this path must follow Plan 1 (below) achieve a 3.5 grade-point average in their coursework and pass the preliminary examination as described on the "Ph.D. Program" section below.

Students wishing to terminate their graduate studies with a Master's Degree may choose from the two Plans of Study below, in consultation with their research advisor.

All students in the BS/MS program must follow Plan 2 for the M.S. degree.

Plan 1. Students in this plan are required to

1) complete 42 units including **27** units of formal coursework, of which
   a) a minimum of 21 units must be approved 200 level courses (200-289),
   b) at most 6 units of approved advanced undergraduate courses not used already for credit toward a previous degree,
   c) 3 units of Matrl 290 (Research Group Studies[1]) and
   d) 12 units of Matrl 598 (thesis research), and

2) submit an acceptable thesis based on original research. There is no oral defense of the M.S. thesis, but the thesis must be approved by a committee of three faculty members,[2] including the student's advisor. At least one committee member must have a majority appointment in Materials, and one must have a non-zero appointment in Materials.

Plan 2. Students in this plan are required to

(1) complete 42 units of coursework including
   (a) a minimum of **27** units from approved 200 level courses (200-289),
   (b) at most 6 units of approved advanced undergraduate courses not used already for credit toward a previous or concurrent[3] degree,
   (c) no fewer than 3 and no more than 6 units of Matrl 596 (Directed Reading and Research) or Matrl 598[4] (M.S. Thesis Research), and
   (d) 3 units of Matrl 290 (Research Group Studies[1]), and (2) submit an acceptable engineering

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1 The spirit of this course is for students to develop the ability to communicate their research to an interdisciplinary audience, beyond their own research group, and also learn about research from other groups. Examples include the Structural Materials Seminar Series and the MRL IRG group meetings.

2 Please be aware that committee members must be academic senate members and any exceptions must be submitted to the Academic Affairs Committee and then to the UCSB Graduate Council for approval.

3 Students in the BS/MS programs cannot use any courses toward both the BS and the MS degree.

4 Not available to students in the BS/MS program.

report based on the independent studies. The report must be approved by a committee of two faculty members,[2] including the student's advisor. At least one member of the committee must have a majority appointment in Materials.

Appropriate course tracks for use in planning a program of study are presented in a subsequent section. Further details are also available from the Materials Graduate Affairs Office.

PH.D. PROGRAM

Students are expected to complete the Ph.D. program within five years after entry at the Bachelor's level and within four years after entry at the Master's level.

Coursework

Students admitted with a Bachelor's degree are required to complete a minimum of 72 units of coursework and a minimum of 2 units of Matrl 501 (Teaching Assistant Practicum – See Teaching and Communication). The 72 units of coursework are structured in the following manner:

- 42 units of 200-level courses (excluding 290 and 500 series)
  - Up to 8 units of upper division undergraduate courses may be taken for credit toward the 200 level course requirements with prior approval of the student's advisor and the AAC.
- 15 units of Matrl 290 (Research Group Studies[1])
  - Students are required to enroll in one (and only one) unit of Matrl 290 for every quarter of residence they spend at UCSB, even if they have exceeded the unit requirement.
- 15 units combined of Matrl 598 (M.S. Thesis Research) and 599 (Ph.D. Dissertation Research)
  - Students must register in 598 prior to advancing to candidacy and in 599 afterward. Both courses count toward the research unit requirements. Students must continue to register for 598 or 599 units every quarter (except Summer) even if they have exceeded the unit requirement.

Students entering with a M.S. degree may petition to waive certain unit requirements for the Ph.D. (up to 15 units of 200-level courses and a maximum of six units of 290) deemed to have been fulfilled by Master's studies elsewhere.

All Ph.D. students are required to complete the following series of core courses in the appropriate sequence:

- ***Matrl 200A*** – Thermodynamic Foundation of Materials
- ***Matrl 200B*** – Electronic & Atomic Structure of Materials (Prerequisite: Matrl 200A)
- ***Matrl 200C*** – Structure Evolution (Prerequisite: Matrl 200A)

In preparation for more advanced and specialized courses within their area of specialization, students are strongly encouraged to complete this core course sequence during their first year of study. (These courses may not be waived). A minimum grade of B in each of these courses is required prior to taking the Qualifying Examination (described below).

Incoming students are expected to design a proposed program of study suitable to their interests and research field with the assistance of their advisor and submit it for approval to the Academic Affairs Committee *by the end of the first quarter of residence*. The study plan must be endorsed by the student's faculty advisor and approved by the department graduate advisor, although it may be modified during the course of the student's program. (Modifications may be subject to approval by the AAC. The student should consult the Graduate Program Coordinator in the Materials Department Office for questions in that regard.)

In developing an appropriate interdisciplinary program of study Ph.D. students are required to take 3 courses selected from those listed under "Main Course Sequences" on pages 12 to 15. The major course sequence must be selected in consultation with the student's advisor, clearly listed in the program of study and approved by the AAC. In addition, the student is expected to take both specialized courses in their major field as well as any general courses deemed necessary or recommended. Students are also encouraged to take courses designed to broaden their knowledge of other materials as well as selected courses in other departments that may enhance their education. Note, however, that these courses must be approved by the Academic Affairs Committee as part of the program of study filed by the student. As a guideline, up to three graduate level courses taken outside the department may be counted toward the 200 level course requirements in the Materials Department, subject to the limits discussed in the next section.

Main course sequences are typically offered every year and students typically complete their selected major sequence within the first year. However, students with interests in more than one area could extend the time necessary to complete the major sequence if needed to take part of a sequence in another area. Specialized electives and general courses are taken during the second year, and often on the third year since some specialized courses are only offered on alternate years or less regularly. Students should consult the appropriate Course Track for their major from the section Major Course Tracks (below) in planning a program of study. As a guideline, courses should be selected to integrate a coherent program rather than simply to satisfy the total unit requirement. Please see notes regarding taking courses in certificate programs or emphasis below.

Foreign Language and Special Programs

There are no formal requirements regarding either foreign languages or special programs However, Ph.D. students are encouraged to incorporate courses from outside their area of specialization into their curriculum in order to broaden their knowledge of the materials field. They are also encouraged to take advantage of courses offered under specialized emphases, as appropriate to their major (e.g. Bioengineering), or certificate programs such as the Technology Management Program. Note, however, that courses used toward an emphasis or a certificate may not be counted toward the course requirements for the Materials Ph.D. or M.Sc. The student may petition to have **one** course from these programs, e.g. the Technology Management Program or the Bioengineering Emphasis, count toward their Ph.D. requirement as long as it is compatible with the study plan (and approved by their advisor and the AAC).

Students having a particular interest in strengthening their background in foreign languages may pursue the necessary coursework to fulfill that interest, but these units may not be used to satisfy the course requirements for the Ph.D. *It is strongly recommended you consult with the Graduate Program Coordinator (GPC) before you take courses not included in your study plan to ascertain whether they would count toward your unit requirements, and file an amended study plan as appropriate.*

Teaching and Communication

All Materials Ph.D. students are required to act as Teaching Assistants for *at least one quarter* while in residence at UCSB (usually during the first year), in either Materials courses or within departments providing courses consistent with the student's undergraduate background. **To receive credit for the required teaching*, students must register for Matrl 501* under the instructor in charge of the class *while serving as Teaching Assistants*.** (2 units for 25%TA, 4 units for 50%TA. These units are not counted towards the 72 units of academic work required for gradua-

tion). Teaching Assistants supervise labs, conduct recitation, tutor undergraduate students and give seminars. Because this is an academic requirement of the program, students' stipends will remain *unchanged* while serving as Teaching Assistants.

Students are also required to present research seminars as part of Matrl 290 (Research Group Studies), thereby ensuring that they gain experience in organizing and presenting lectures. Seminars are expected at both the group level (about one per quarter) and the program level (one per year). Presentations at conferences are strongly recommended after the first year of study. Such activities enable students to improve the skills necessary for the subsequent pursuit of opportunities in teaching or research.

Registration Information

Registration is completed on the web via the GOLD system. Complete instructions on this process can be found in Registration & Enrollment, which is available online at http://registrar.sa.ucsb.edu. The Office of the Registrar will assess a *$50 late registration fee* to students who register after the deadline. (*The department will not cover this fee.*)

> **IMPORTANT NOTE**: When taking cross-listed courses, enroll under the Matrl course number; for example, students should take Matrl 215A instead of the equivalent ECE220A. All courses with Matrl course numbers are listed on the department web page each quarter. If the course is "full", obtain an enrollment code for the Matrl course from the instructor (contact the Graduate Program Coordinator) rather than enrolling in the equivalent cross-listed course.

In addition to required or elective courses needed for their program of study, students must register for the following:

- 1 unit of Matrl 290 (under their academic advisor's code) every academic quarter in residency in order to receive credit for attending research group meetings and interdisciplinary seminars. Students must check with their academic advisor the appropriate requirements for earning the credit in Matrl 290 – see additional information under **Teaching and Communication**)
- At least 1 unit of either Matrl 598 (prior to candidacy) or Matrl 599 (while in candidacy) every academic quarter after having selected an advisor and having begun research. The number of units in Matrl 598 or Matrl 599 should be selected to bring the quarter total to at least 12 units.
- If serving as a teaching assistant, register for Matrl 501 (or the equivalent in other departments if serving in a non-Materials course) under the instructor in charge of the class

A summary of guidelines and milestones regarding your program of study

It is recommended that you print a copy of this page and keep it for reference on your desk. If you have questions or need clarification please consult with the Graduate Program Coordinator.

Before the end of your first quarter in residence you must:

- Select a research advisor who has a funded position and is willing to accept you into his/her group.
- Prepare a program of study in consultation with your research advisor and submit it for approval to the Academic Affairs Committee via the Graduate Program Coordinator. You must clearly specify your selected major sequence.

Every quarter in residence:

- Take 12 units of academic credit comprising the following: 200 level coursework (until course requirements are satisfied), one unit of Matrl 290, and as many units of 598 or 599 needed to reach the total of 12 units.

On the quarter in which you are a teaching assistant

- Enroll in 2 (or 4) units of Matrl 501 (or the equivalent course if you TA in another department).

1st year in residence:

- Take one of the core departmental courses (Matrl 200A, B, C) per quarter. Take one unit of 290 and as many units of 598 to make up for 12 units per quarter.
- Take one of the courses in your major sequence per quarter. This may be extended into the second year for students with interests in more than one area, e.g. inorganic and structural, or macro and electronic/photonic materials. Discuss with your advisor what the proper sequence of courses should be to optimize your educational experience.
- Attend Orientation for Preliminary Examination in the Spring Quarter.
- Prepare for your preliminary examination during the Summer, concurrently with advancing your research work.

2nd year in residence

- Take two courses per quarter, including any remaining major sequence courses and elective courses. Take one unit of 290 and as many units of 598 to make up for 12 units per quarter.
- Review your program of study prior to your preliminary examination. Submit for approval to the AAC if you have made changes from the previous version.
- Take your preliminary examination during the first quarter of your second year.
- Attend orientation for your Qualifying Examination in the Spring Quarter.
- Prepare for your Qualifying Examination during the Summer, concurrently with advancing your research work.

3^{rd} – 5^{th} years in residence

- Take any remaining courses needed to satisfy your 200 level unit requirements. Take one unit of 290 and as many units of 599 per to make up for 12 units per quarter.
- Schedule and take your annual assessment with your committee.
- Prepare and schedule your dissertation defense in agreement with your advisor. Please check with the Graduate Program Coordinator that all other requirements have been satisfied before scheduling your defense.

MAJOR COURSE TRACKS

ELECTRONIC/PHOTONIC MATERIALS

Please note course offerings may change from year to year.

Course Number	Course Title	Units
	Main Sequence Courses:	
206A-B	Fundamentals of Electronic Solids I, II	4
209A	Crystallography and Diffraction Fundamentals	3
211A	Engineering Quantum Mechanics	4
215A-B-C	Semiconductor Device Processing (215A is *required for authorization to work independently in clean room.*)	4
	General Courses:	
209B	X-Ray Diffraction	3
209C	Electron Microscopy	3
219	Phase Transformations	3
228	Computational Materials	3
279	First-Principles Calculations for Materials	3
281	Technical Communication and Presentation Design	3
	Specialized Courses:	
204	Introduction to Magnetism and Magnetic Materials	3
205	Wide-Band Gap Materials	3
211B	Engineering Quantum Mechanics II	4
216	Defects in Semiconductors	3
217	Molecular Beam Epitaxy & Band Gap Engineering	3
226	Electrical and Functional Crystals and Ceramics	3
227	Metal Organic Chemical Vapor Deposition	3
263	Thin Films and Multilayers	3
288AA-ZZ	Special Topics in Electronic Materials	3
	Background Courses	
162A	Quantum Description of Electronic Materials	4
162B	Fundamentals of Solid State	4
ECE 162C	Optoelectrical Materials and Devices	4

INORGANIC MATERIALS

Please note course offerings may change from year to year.

Course Number	Course Title	Units
	Main Sequence Courses:	
209A	Crystallography and Diffraction Fundamentals	3
218	Introduction to Inorganic Materials	3
274	Solid State Inorganic Materials	3
	General Courses:	
209B	X-Ray Diffraction	3
209C	Electron Microscopy	3
211A	Engineering Quantum Mechanics	4
219	Phase Transformations	3
222A	Colloids & Interfaces	3
228	Computational Materials	3
281	Technical Communication and Presentation Design	3
	Specialized Courses:	
204	Introduction to Magnetism and Magnetic Materials	3
226	Electrical and Functional Crystals and Ceramics	3
251	Processing of Inorganic Materials	3
264	Hydrogen in Materials	3
286AA-ZZ	Special Topics in Inorganic Materials	3
	Background Courses	
Chem 175	Physical Inorganic Chemistry	3

MACROMOLECULAR/BIOMOLECULAR MATERIALS

Please note course offerings may change from year to year.

Course Number	Course Title	Units
	Main Sequence Courses:	
271A	Synthesis of Macromolecules	3
271B	Structure and Characterization of Complex Fluids	3
271C	Properties of Macromolecules	3
	General Courses:	
214	Advanced Topics in Equilibrium Statistical Mechanics	3
222A	Colloids and Interfaces	3
228	Computational Materials	3
253	Liquid Crystal Materials	4
273	Experimental Techniques in Macromolecular Materials	3
281	Technical Communication and Presentation Design	3
	Specialized Courses:	
272	Mechanical Forces and Biomolecules	3
276A	Biomolecular Materials I: Structure & Function	3
276B	Biomolecular Materials II: Applications	3
278	Interactions in Biomolecular Complexes	3
280A	Synthesis and Electronic Structures of Conjugated Polymers	3
280B	Organic Electronic Devices	3
280C	Fabrication and Measurement of Devices with Soft Matter	3
284	Synthetic Chemistry of Macromolecules	3
287AA-ZZ	Special Topics in Macromolecular Materials	3
	Background Courses	
ChE 102	Biomaterials and Biosurfaces	3
135	Biophysics and Biomolecular Materials	3
160	Introduction to Polymer Science	3
ChE 225	Principles of Bioengineering	3

STRUCTURAL MATERIALS

Please note course offerings may change from year to year.

Course Number	Course Title	Units
	Main Sequence Courses:	
207	Mechanics of Materials	3
220	Mechanical Behavior of Materials	3
234	Fracture Mechanics	3
	General Courses:	
209A	Crystallography and Diffraction Fundamentals	3
209B	X-Ray Diffraction	3
209C	Electron Microscopy	3
219	Phase Transformations	3
228	Computational Materials	3
281	Technical Communication and Presentation Design	3
	Specialized Courses:	
230	Elasticity and Plasticity	3
240	Finite Element Structural Analysis	3
251	Processing of Inorganic Materials	3
261	Composite Materials	3
263	Thin Films and Multilayers	3
289AA-ZZ	Special Topics in Structural Materials	3
	Background Courses	

MONITORING STUDENT PROGRESS THROUGH THE PHD PROGRAM

The Materials Department has the following system of annual assessments to monitor the student's progress through the Ph.D. program.

- Start of Year 2 — Preliminary Examination
- Start of Year 3 — Qualifying Examination (Advancement to Candidacy)
- Start of Years 4, 5, … — Annual Progress Assessments
- End of Program — Dissertation defense

With the exception of the Dissertation defense, all assessments are to be performed by a faculty committee within ±2 months of each anniversary of the student's entrance into the Department (typically between August and November of each year). All assessments are to include a written document (described below for each case), an oral presentation and a period of questions and discussion, after which the committee will render its assessment of the student's progress and make recommendations for future actions. Students must deliver a copy of their written document to the Graduate Program Coordinator (GPC) for the departmental records at the same time the document is delivered to the committee, and consult with the GPC regarding the filing of any necessary paperwork for each stage.

The general guidelines for all written documents prepared by the students for the assessments are 12 pt font, 1" margins on all sides, 1.5 lines spacing. A cover page is required, including the title, type of assessment, name of student, names of the committee, date, time and place of the exam and an abstract. The text should comprise 10 pages maximum, not counting the cover. *References and figures are to be placed after the text* and are not included in the number of pages of text specified for the corresponding document. (For theses and dissertations the students must follow the guidelines specified by the Graduate Division.)

PRELIMINARY EXAMINATION

The Preliminary Examination is administered 10-14 months after the student's entrance into the program. *Students who do not meet this deadline and do not petition for an extension based on a justifiable reason (e.g. extended absence of their advisor or co-advisor due to sabbatical) may be placed on academic probation and may become ineligible for financial support.* Students entering with a M.Sc. may petition to take the examination earlier if they feel prepared for it.

The examination committee consists of three faculty members from the student's major field, including the student's advisor. All members must be ladder faculty,[5] at least two should have a non-zero percent appointment in Materials, and *preferably* at least one should be a majority appointment. One member of the committee, other than the advisor, will serve as Chair of the Preliminary Examination committee. The committee members are selected by the student in consultation with his/her advisor and are subject to approval by the AAC. The names of the committee members should be submitted to the AAC via the GPC at least 3 months prior to the examination. If the committee changes because of scheduling conflicts the student must notify the Graduate Program Coordinator immediately and ensure the new committee is approved before the examination.

[5] The University requires committee members to be Academic Senate members. Non-senate members with established affiliation with UCSB may be included, but a petition must be filed with the Graduate Division before the committee is approved. Please consult the Graduate Program Coordinator to determine if any of your committee members is not considered a Senate member.

Students with a GPA of 3.5 or better in the graduate program at UCSB are automatically eligible to take the examination. Students with a GPA above 3.2 may petition for a waiver of the 3.5 GPA requirement. The petition must be filed with the Graduate Program Coordinator and is evaluated by the Departmental Graduate Advisor (and the Academic Affairs committee if the circumstances require it) in consultation with the student's advisor. Each student may have two opportunities to pass the Preliminary Examination. Students who fail the examination in the first opportunity must take it again within a 2-4 month period from the first exam. Students with a GPA less than 3.2 at the end of their first year are ineligible to take the Preliminary Examination and will be placed on monitoring by the Graduate Division. Students may remove the monitoring status if they increase their GPA to above 3.2 within the next academic quarter, at which point they may petition the Department for an opportunity to take the exam, with prior consent of their academic/research advisor.

The Preliminary examination is intended to assess whether the student has the fundamental knowledge, intellectual maturity and degree of understanding of his/her major field and prospective research topic to be able to write a dissertation proposal successfully over the course of the following year. At least 3 months prior to the examination date the student's advisor will assign the student a specific topic relevant to his/her intended research project. The student will research the literature on the assigned topic, identify key outstanding issues and/or research opportunities, propose ideas on how to address these issues and/or exploit the opportunities, and outline a tentative research plan. The student is expected to prepare a short document (*10 pages of text maximum*, plus a minimum number of figures and suitable references *after* the text) summarizing his/her findings and ideas. The document must be submitted to the committee and the Departmental Graduate Office *at least one week before the examination date*.

On the day of the examination the Graduate Program Coordinator will bring the documentation for the exam to the examination room and ascertain the committee is properly constituted. The student will present a 30-40 min seminar outlining his/her findings, ideas and prospective research plan. After the presentation, the committee will probe the student's understanding of the subject, his/her knowledge of the fundamentals of materials science relevant to the problem, and his/her ability to think soundly and creatively. It is also expected that by this point in time the student should have had some initial research experiences and be able to relate those to the literature he/she has researched. However, *the preliminary examination is not intended to focus on the student's preliminary research*. After the examination the committee may render one of the following decisions, with recommendations for future action or corrective measures as appropriate:

(i) Advance to the Qualifying Examination without reservations.

(ii) Advance to the Qualifying Examination with a warning of deficiencies in the student's background or understanding that need to be corrected (e.g. by taking additional courses, independent reading, etc.) by the time of the Qualifying Examination. This is normally identified as a "provisional pass."

(iii) Requirement that the student takes the Preliminary Examination again before he/she is allowed to advance to the Qualifying Examination. This second exam must take place within a 2-4 month period following the first one. *Failure to advance after the second exam requires the student to leave the program, with the option of completing an MS degree.* During the time that the student has not passed the preliminary examination he/she will be placed on monitoring by the Graduate Division. If the student fails for the second time he/she will have to comply with the conditions in the next paragraph.

(iv) Recommendation that the student finishes at the MS level under Plan II, which should be completed within two years of the student's first enrollment in the program. This time frame is typically sufficient to complete all the degree requirements. In exceptional cases the student may petition for an additional quarter, subject to approval by his research advisor and the Academic Affairs Committee. The student will be placed in monitoring by the Graduate Division and, if progress toward the MS degree is not deemed satisfactory, the student may be placed on probation. Students finishing at the MS level are not required to satisfy the TA requirement but the Graduate Division will still enforce the B minimum requirement in the core courses.

QUALIFYING EXAMINATION (ADVANCEMENT TO CANDIDACY)

The Qualifying Examination is administered 22-26 months after the student's entrance into the program. Students who do not meet this deadline may be placed on academic probation and may become ineligible for financial support.

The examination committee consists of at least four faculty:[6] three having more than a 0% appointment in the Materials Department (at least one of them preferably with a majority appointment in Materials) and one with no more than a 0% appointment in the Materials Department. One member of the committee, other than the advisor, will serve as Chair of the Qualifying Examination committee. Members of the examination committee are nominated by the student and research advisor at least 3 months prior to the examination and must be approved by the Academic Affairs Committee. The examination committee typically becomes the dissertation committee.

Pre-requisites for the Qualifying Examination include: (i) successful completion of the Preliminary Examination; (ii) completion of the Materials Department core courses (200A, B, C) with a minimum of B in each one of them; and (iii) a minimum 3.5 GPA in the graduate program at UCSB. Students with a GPA above 3.2 may petition the Academic Affairs Committee for a waiver of the 3.5 GPA requirement. Students with a GPA below 3.2 are not eligible to advance to candidacy and will be placed on monitoring by the Graduate Division.

The purpose of the qualifying examination is to assess whether the individual has acquired the requisite understanding of his intended research topic and critical thinking ability to elaborate and execute a sound research plan for his/her dissertation. Some preliminary research is required to elaborate the dissertation proposal, but the exam is not intended to evaluate a project that is well past the planning point.

The examinee must submit a formal dissertation proposal (maximum 10 pages of text plus a sensible number of figures and a substantial list of references both placed after the text) that summarizes the intended research problem, the research approach, results to date, and future directions. This proposal should be submitted to the examination committee and the Department *at least two weeks before the examination.* (Failure to deliver the thesis proposal to the committee on time may result in postponement of the examination.)

[6] Committee members must be Academic Senate members but exceptions can be made by petition to the Graduate Division as noted in footnote 5 in the Preliminary Examination section.

On the day of the examination the Graduate Program Coordinator will bring the documentation for the exam to the examination room and ascertain the committee is properly constituted. The format of the examination includes a 40-45 min presentation of the dissertation proposal by the student, during which time only questions of clarification will be allowed. The presentation will be followed by questions from the committee for a period of approximately 60 min. A decision will be rendered by the committee at the end of the examination, with one of the following recommendations:

i) Advance to Candidacy without reservations.
ii) Advance to Candidacy with reservations, which should be re-evaluated in the subsequent annual assessment.
iii) Requirement that the student takes the examination again before he/she is allowed to advance to Candidacy. This second exam must take place within a 6 month period following the first one. The student will be placed on monitoring status by the Graduate Division during this period. *Failure to advance to candidacy after the second exam requires the student to leave the program, with the option of completing an MS degree.* Please see details for finishing with an MS below.
iv) Failure to meet the standards for advancement to candidacy, which requires the student to leave the program with an option to finish at the MS level under plan I or II. It is assumed that at this stage the student would have finished all the coursework and may have up to an additional 6 months after the exam, but no more than 3 years after his/her first enrollment in the program, to finish his/her requirements for the MS degree. The student will be placed on monitoring status and, if progress toward the MS is not deemed satisfactory within the first quarter after the exam, he/she may be placed on probation.

ANNUAL PROGRESS ASSESSMENTS

After advancement to candidacy, each student is required to report his/her progress to the dissertation committee at least once a year on a formal basis (*i.e.* 36±2, 48±2 and, if needed, 60±2 months after the student's entrance into the program). *Students who do not meet this deadline may be placed on academic probation and may become ineligible for financial support.*

The student is expected to prepare a short written progress report for the committee, deliver it to the members and meet with them for an oral presentation of the progress report and discussion of his/her progress, research findings and ideas for the remaining work. (Alternatively, the student may provide a draft of a paper submitted for publication in lieu of the document, as example of his/her progress, with a brief summary of accomplishments during the previous year.) The committee will assess the progress and provide advice to the student on problems that may hinder the completion of the dissertation on a timely basis. If the student is not progressing satisfactorily toward completing his/her degree, the committee may recommend that the student be put on probation (e.g. by giving incomplete or unsatisfactory grades in the thesis units) and, if the problem is not corrected, recommend that the student finishes with an MS degree after completing the appropriate requirements.

DISSERTATION DEFENSE

The purpose of the dissertation defense is to ascertain that the student has completed a coherent, original body of research on his/her chosen topic that represents a significant contribution to the literature, and is able to defend the results and conclusions in front of a knowledgeable public. The student should notify the Graduate Program Coordinator of the impending defense two months in advance of the proposed date so the GPC can assist with the preparation of the UCSB Graduate Di-

vision documentation for the defense. (Students must not do this independently. Please remember that the instructions for filing require the student to ensure that he/she *has fulfilled all departmental degree requirements*. You must ascertain this by *meeting with the GPC before you schedule your defense*.) The student must provide copies of the dissertation draft to the dissertation committee (as constituted for the Qualifying Examination) and the Department via the GPC. The dissertation draft should be submitted *four weeks prior to the intended date of the dissertation defense* to allow sufficient time for the examination committee to read it and comment on it. (Failure to deliver the dissertation draft to the committee or the Department on time may result in postponement of the defense. The draft may be submitted as a single electronic file but individual committee members may require the student to submit a paper copy). At the time the dissertation draft is delivered to the department the student must also submit the title and abstract of the dissertation, as well as the date and place of the defense, which must be advertised officially by the Department to ensure opportunity for attendance by interested people.

The committee must ascertain the suitability of the draft and provide comments and recommendations for amendments to the dissertation. In cases where concerns are identified the committee may request the candidate to address these issues and submit a revised draft of the dissertation prior to the date of the defense or before the final version of the dissertation is approved for filing. Once the dissertation draft is deemed suitable by the committee permission is granted for the candidate to present a formal defense of the dissertation, which should be done in a public seminar.

The seminar must be attended by the entire dissertation committee, which will be chaired by the student's advisor. Arrangements for electronic participation of a committee member absent from campus because of travel are allowed, but the department must be notified in advance of such arrangements. Any attendee at the defense can question the candidate. However, the committee chair has the authority to terminate inappropriate questioning. After public discussion is concluded, the audience will be asked to leave the room and the committee will continue the examination of the candidate in private. After the examination, the committee will deliberate and render a decision on whether the candidate has earned the Ph.D. degree. As noted earlier, the committee may require amendments to the dissertation before signing the approval page.

Once the candidate has passed his/her dissertation defense and made the amendments requested by the committee, the last requirement is to file the dissertation with the Graduate Division. A Guide to Filing Theses and Dissertations is available on the Graduate Division web page http://www.graddiv.ucsb.edu. Concurrent with filing the dissertation with the Graduate Division, the student must submit to the Graduate Program Coordinator the same electronic file containing the final version of the dissertation and two paper copies of the signature page with original signatures. The department will print and bind three hard copies of the dissertation. One copy will be kept in the departmental collection for archival purposes, the second copy will be returned to the student, and the third will be given to the student's advisor.

LAB SAFETY POLICY

Safety is the first priority in all laboratories at UCSB. As UCSB students, you are responsible to observe safe practices per faculty, Teaching Assistant, and University policies and regulations. Environmental Health & Safety (EH&S) provides safety training and maintains updated information related to safety practices and policies on their website: http://www.ehs.ucsb.edu

It is **mandatory** that all new Graduate Students attend the EH&S *Fundamentals of Laboratory Safety* LIVE course that is typically scheduled on the Wednesday before instruction begins.

If you arrive on campus before attending the live lab safety course, you must take the online lab safety course before entering any UCSB lab and/or office space located in a lab building.

The *Fundamentals of Laboratory Safety – ONLINE* course is described here:

http://www.ehs.ucsb.edu/training/fundamentals-laboratory-safety-online

and it can be taken through the UCSB Learning Center:

https://www.learningcenter.ucsb.edu

It is also mandated by the Materials Department that you retake the EH&S *Fundamentals of Laboratory Safety* course once per year at http://learningcenter.ucsb.edu/default.aspx.

Individual laboratories require additional safety training procedures that must be completed before the student is allowed access to the lab and use of the equipment. Students should consult with the technical staff person in charge of the lab (or the faculty advisor for individual labs) to ensure they have met all the safety training requirements.

Access to laboratories not only requires lab safety training, but also personal protective equipment (PPE). Please see:

http://www.ehs.ucsb.edu/ppe

You will be issued PPE, e.g. laboratory coats, eye protection, and other items, based on the specific needs for the laboratories for which you have been approved to access. The safety officer for a particular lab will direct you to the Laboratory Hazard Assessment Tool (LHAT), which will determine what PPE is required for a given lab and provide information about where to pick-up the equipment on campus.

OTHER IMPORTANT PROCEDURES

ELECTRONIC KEY CARD ACCESS

Access cards are required for several Materials/SSLEC office spaces and labs. If it is determined that students will need access to these spaces, an order form can be obtained from the Materials Office Receptionist in EII, Room 1355. Once a student has been issued a card from the UCEN, they will need to return to the reception area to begin the access approval process. Access is determined individually based on research discipline and office location. Students must meet all the training and safety requirements before they are allowed use of the labs, even if they have been issued a key card.

COMPUTING FACILITIES

Computers are located in all Materials Department student offices. Additionally, students are allowed to bring in personal laptops and workstations for use on Materials networks. To register a computer for network access, fill out the online IP address request form at:

http://www.materials.ucsb.edu/request_ip.php

Please be aware that system and network security is strictly enforced. The departments Computing and Network Security Policy can be found at:

http://www.materials.ucsb.edu/policies/computer_security.php

All students are eligible for College of Engineering email accounts through the Engineering Computing Infrastructure (ECI). To open an account, please follow the link below:

https://accounts.engr.ucsb.edu/create

The Department employs a full-time system administrator, Budd Jamieson, and a part-time system administrator, Mike Edwards, to maintain computers and answer any questions about the computing services. For computing and network assistance, please email:

mats-help@engineering.ucsb.edu

ON-LINE RESOURCES

The Materials Department Web Site (www.materials.ucsb.edu) is a valuable source of departmental and university information. At the web site, you will find:

- Quarterly schedule of Materials courses
- Listings of Materials personnel (faculty, staff and students) with email addresses
- Links to faculty web pages
- List of available facilities within the department
- List of related research centers and groups (with links to their web pages)
- Procedures to be approved for Electronic Lab Access via your Access Card
- Health & safety information, including links to EH&S and UCSB Emergency information.
- Travel policies and procedures manual

Please note that some facilities and other useful information are available under one of the various materials research centers with which the Department faculty are affiliated, e.g. MRL, CNSI, SSLEC, etc. Check those pages online for specific information on facilities and support available there.

CAMPUS MAP


Transportation & Parking Services
UNIVERSITY OF CALIFORNIA, SANTA BARBARA
MAP & DIRECTORY
UCSB parking permit must be displayed on vehicle at all times.
Permit dispensers throughout campus sell short-term permits. The Parking Sales Office in Building 381 off Stadium Road sells permits during business hours. Payment by credit card (Visa, MasterCard, or American Express), cash or campus Access card is accepted.
A short-term permit entitles you to Visitor parking. Please ensure that you park in a space or lot allowed by your permit type as parking violations are subject to citation. Do not park in spaces marked "Restricted," "Restricted at All Times," or "Reserved" without an appropriate permit.
What do the lot colors mean?
Yellow Visitor and student parking allowed at all times.
Green No visitor or student parking Monday to Friday between 7:30 AM and 5:00 PM.
Visitor and student parking allowed at other times. Individual spaces within lots may have restrictions.
No staff, visitor or student parking in 15 Parking Monday to Friday between 7:30 AM and 5:00 PM.
Violet No visitor or student parking (except Disabled) at any time.
Orange Residence Hall student parking. Each location requires its own RS permit.
TPS Office Hours Mon–Fri 7:30 am – 5:00 pm
Permit Sales & Information (805) 893-2346
Visit our website at www.tps.ucsb.edu
Mail Services
Public Safety
Harder Stadium
Facilities Management
Environmental Health & Safety
Caesar Uyesaka Stadium
Storke Field
Softball Stadium
Lacrosse Field
Recreation Center
Recreation Center Fields
San Clemente Housing
El Colegio Road
Cervantes Road
El Greco Road
Picasso Road
Segovia Road
Cordoba Road
Pardall Road
Madrid Road
Embarcadero Hall
Seville Road
Isla Vista Theater
Trigo Road
Sabado Tarde Road
El Nido Lane
Del Playa Drive
Manzanita Village
Stadium Road
Ocean Road
Mesa Road
Orfalea Center for Global and International Studies
Robertson Gym
Intercollegiate Athletics
Audit & Advisory Services
Student Health
Koegel Autism Center
Gevirtz Graduate School of Education
Education
Social Sciences and Media Studies
Pollock Theater
Student Affairs & Admin. Services
Cheadle Hall
Coral Tree Café
North Hall
Kerr Hall
South Hall
Events Center
AS Bike Shop
Humanities and Social Sciences
Theater and Dance East
Theater and Dance West
Student Resource
Counseling & Career Services
Girvetz Hall
Arts
Music
Lotte Lehmann Concert Hall
Storke Tower
Art Museum
Arts Library
Faculty Club
Faculty Club Addition (future construction)
Faculty Club Green
University Center
Corwin Pavilion
Loading Dock
Ortega
Loma Pelona
San Rafael Hall
Camillo
Pool
Mesa
Mosher Alumni House
Campbell Hall
Phelps Hall
Henley Hall (future construction)
Henley Gate
Steck Circle
Engineering Science
Chemistry
Elings Hall
Engr II
Courtyard Café
Kohn Hall
Ellison Hall
Buchanan Hall
Physical Sciences North
Physical Sciences South
Library Addition (under construction)
Davidson Library
El Centro
Broida Hall
MRL
Harold Frank Hall
Webb Hall
Bren Hall
Noble Hall
Life Sciences
Bio II
Psych
Marine Science Research
Ocean Science Education
UCEN Road
Lagoon Road
Ward Memorial Blvd.
Anacapa Hall
Santa Rosa Hall
San Miguel Hall
De La Guerra
Santa Cruz Hall
San Nicolas Hall
University House
Channel Islands Road
Office of Technology & Industry Alliances
Marine Operations Facility
Marine Biotechnology Laboratory
REEF/Aquarium
UCSB Lagoon
PARKING SERVICES
VISITOR CENTER
INFORMATION KIOSK
UNIVERSITY CENTER
RESTRICTED AREA
RESTRICTED AT ALL TIMES
PARKING DESIGNATIONS
Permit required at all times.
C Commuting Student & Visitor
RS2 Residential Student
22RS Residential Student
RS23 Residential Student
RS38 Residential Student
Bus Stop
Coastal Access Pathway
Coastal Access Point
Disabled Parking
EV Charging Station
Motorcycles
Parking
Parking Meters
Permit Dispensers
Residence Hall
Traffic Light
Please Observe Posted Speed Limits
Emergency
• For fire, police or medical emergency assistance call 9-911 or use emergency phones (in red boxes).
• UCSB Police Department, Public Safety Building, non-emergency (805) 893-3446 (24 hours).
• CSO Escort Service is available by calling (805) 893-2000.
NOVEMBER 2014
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ACKNOWLEDGMENT OF HAVING READ THE GRADUATE STUDENT MANUAL

(Print this page, sign it after reading the manual and turn it in to the Graduate Program Coordinator* by the end of the first full week of classes following the orientation session for new students.)

I, _____ acknowledge that I have carefully read and understood the contents of the Graduate Student Manual for the Materials Department (Edition Fall 2015). I understand my first point of contact for any questions regarding the Graduate Manual or the Materials Graduate Program is the Graduate Program Coordinator* in the Materials Department, who may refer me to the Graduate Advisor** in the Materials Department.

_____
Signature

_____
Date

* The current Graduate Program Coordinator is Ms. Jocelyn Guzman. Please note this person is referred to as Graduate Program Assistant in the Graduate Division literature.

** The current Graduate Advisor is Prof. Carlos G. Levi