2018-2019

Undergraduate Student Manual

UC SANTA BARBARA
Chemistry and Biochemistry

2018 Chemistry Orientation Agenda

I. Introduction of Undergraduate Staff Advisor and Student Affairs Team

II. Introduction of Department Chair and Welcome Remarks, Professor Steve Buratto

III. Faculty Advisors Introduce and Advice to Freshman

- ❖ Professor Paula Bruice, Honors
- ❖ Professor Leroy Laverman, Chemistry Sophomores and Juniors
- ❖ Professor Petra Van Koppen, Chemistry Freshman and Seniors
- ❖ Professor Kalju Kahn, Biochemistry

IV. Chemistry Club and SciTrek Presentations

V. Review of Undergraduate Manual Contents

- ❖ Explanation of Pre-Major and Major Sheets

VI. Q&A

Staff Undergraduate Advisors

The staff undergraduate advisor is the primary contact for change of major and all other petitions, progress checks, enrollment and waiting list information. The undergraduate advisor can answer most of your questions, or refer you to one of the faculty advisors.

Undergraduate Advisor:
Chika Anyiwo
Office 1004A – Building 232
Phone: (805) 893-5675

Student Affairs Manager & Graduate Program Advisor:
India Madden
Office 1001 – Building 232
Phone: (805) 893-5675

Undergraduate Program Coordinator:
Alice Kojima
Office 1004 – Building 232
Phone: (805) 893-5675

Student Affairs Student Assistants:
Andrew Larson
Christian Greer
Joe Yuke
Office 1001 & Office 1004 – Building 232

To schedule an appointment with the Chemistry and Biochemistry Undergraduate Advisor, please visit: https://chem-ugrads.youcanbook.me/.
You may also call (805) 893-5675 or come visit us in Building 232.

Faculty Undergraduate Advisors

Take advantage of your faculty advisor for course content related questions, tips and advice for success in chemistry/science courses, undergraduate preparation for medical school, independent research with faculty, or if referred by staff undergraduate advisor.

For Freshmen and Seniors (1st and 3rd years) : Petra Van Koppen
Office: PSBN 3670B
Phone: (805) 893-5512
Email: petra@chem.ucsb.edu

For Sophomores and Juniors (2nd and 4th years): Leroy Laverman
Office: PSBN 1643C
Phone: (805) 893-5265
Email: laverman@chem.ucsb.edu

For Biochemistry Majors: Kalju Kahn
Office: PSBN 2623
Phone: (805) 893-6157
Email: kalju@chem.ucsb.edu

For Honors Students: Paula Bruice
Office: PSBN 1668
Phone: (805) 893-2279
Email: pybruice@chem.ucsb.edu

Chemistry and Biochemistry

The Department of Chemistry and Biochemistry

http://www.chem.ucsb.edu/
email: ugrads@chem.ucsb.edu

MAJORS OFFERED:

- **Bachelor of Arts (BA) and the Bachelor of Science (BS) degrees in Chemistry**
- **Bachelor of Science (BS) degree in Biochemistry.**

Chemistry is the study of molecules, their formation from atoms, and their transformation into new molecules. Chemistry seeks to understand and control the reactions that cause these transformations. Chemistry's breadth results from the diversity of molecules, which range from the simple two- to three-atom molecules of the earth's atmosphere to the incredibly complex molecules and molecular structures of living things.

The Department of Chemistry and Biochemistry has divisions of organic, inorganic, analytical, physical and biological chemistry, and materials. Many of the department's 45 faculty members have won national as well as international awards.

The department's excellent facilities, personal contact between highly motivated students and faculty, undergraduate research opportunities, and a relaxed yet demanding learning environment, combine to make UCSB an attractive choice for the serious students of chemistry and biochemistry.

WHAT CAN I DO WITH CHEMISTRY AND BIOCHEMISTRY?

The chemical/pharmaceutical industry is the largest science-based industry in the U.S., including pharmaceuticals and medical supplies, bioengineering, materials, paper and textile production, the petroleum industry, the chemical production industry, and the food and beverage processing industry. UCSB's Chemistry and Biochemistry majors prepare students for careers in industrial and environmental law, and other environmental fields such as resource management, soil conservation and water purification. The majors also prepare students for careers in medicine.

WHY ARE CHEMISTRY AND BIOCHEMISTRY AT UCSB GREAT CHOICES?

- All Chemistry and Biochemistry majors are assigned an advisor to consult about courses and other decisions in their academic careers.
- The faculty includes two Nobel Chemistry prize winners (Walter Kohn, 1998, and Alan Heeger, 2000) and a half dozen members of the National Academy or Royal Society.
- In the period 1997-2007, UCSB ranked 8th in the world in its citation impact in chemistry, and the department ranked 22nd in the National Research Council rankings.
- Overall UCSB ranked 4th in the U.S. in number of citations in the US from 2005-09, and was ranked 7th in the world in 2011 by the Centre for Science and Technologies Studies at Leiden University in the Netherlands.

LINKS FOR EXPLORATION

About the Department
http://www.chem.ucsb.edu/about

Undergraduate Education
http://www.chem.ucsb.edu/undergrad

Meet the Faculty and Staff
http://www.chem.ucsb.edu/people

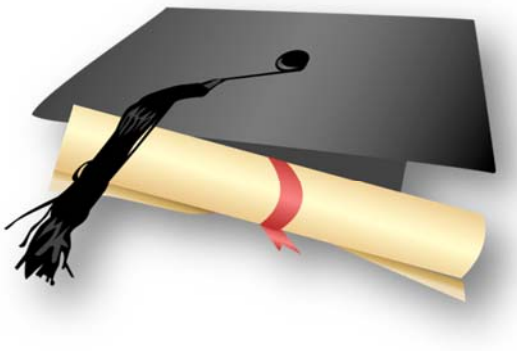
UCSB Materials Research Laboratory
http://www.mrl.ucsb.edu/

USEFUL CAMPUS SERVICES

Advice on Choosing a Major
http://www.lsugeducation.ucsb.edu/advising/major

UCSB Catalog
http://my.sa.ucsb.edu/catalog

Chemistry and Biochemistry Departmental Honors Program



Students shall be designated as having achieved a Distinction in the Major if the following requirements are met:

- ❖ Achieve a grade-point average of 3.5 or above in their chemistry courses
- ❖ Carry out research for a minimum of one year
- ❖ Submit a research thesis paper

Students contemplating this option should adhere to the following:

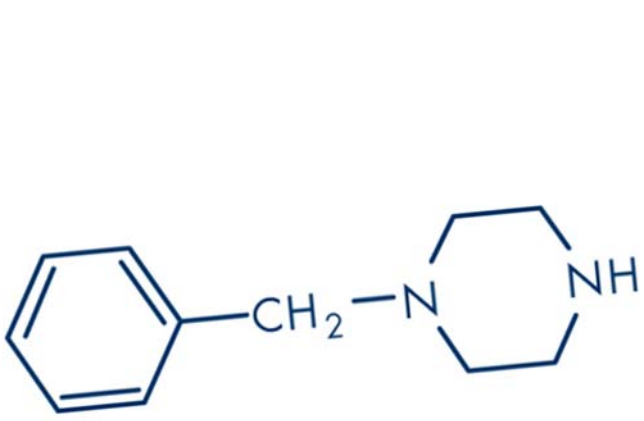
1) Review "Undergraduate Research: Getting Started" pamphlet, available on the Chemistry Department website (http://www.chem.ucsb.edu/undergrad/research)

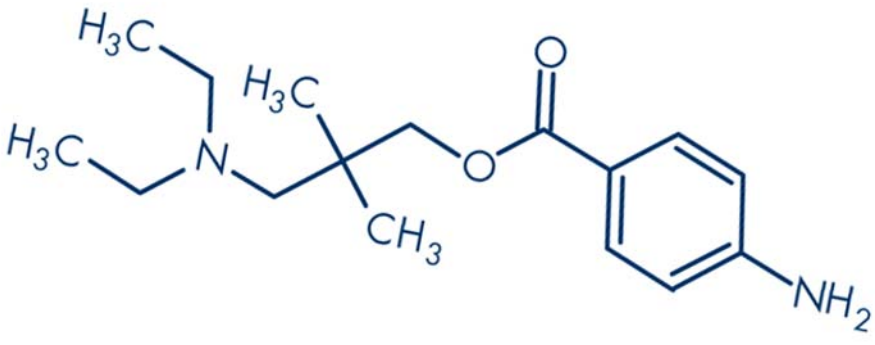
2) Begin Research with chosen faculty member by enrolling in CHEM 99 (lower-division standing) or CHEM 199 (upper-division standing)

3) End of Junior year (no later than the first quarter of your senior year) - notify the Undergraduate Staff Advisor of your intention to pursue Distinction in the Major and identify two research advisors

4) Senior year - enroll in CHEM 199 for two quarters and CHEM 192 for one quarter

5) Submit written research thesis paper by the end of the quarter in which you will graduate





Are You in the Right Major?

You're in the <u>RIGHT</u> major when:

- You can't wait to go to classes in your major.
- The material you study is fun and interesting.
- You have trouble picking which major classes to take because you want to take everything that is being offered.
- You can't stop thinking about the ideas brought up in lecture.
- You talk about topics in your major in regular conversation with friends.
- You pursue opportunities outside of class (research, field trips, additional assignments) in your major field of study.
- You do well in your major classes.

You're in the <u>WRONG</u> major when:

- You dislike your major, but you think it's too late to change.
- Your major makes your family happy, but your true interests lie elsewhere.
- You have lost sight of why you chose your major in the first place.
- You think your current major is the only path to the job you want.
- Your health suffers when you return to school. You feel sick thinking about your classes and assignments in your major.
- The books required for your major do not appeal to you.
- The thought of going to your major classes is scary.
- Your other grades are fine, but your major GPA is lower than it should be.
- You would rather go to the dentist than study for your major.

Want to Talk About it?

- Make an appointment with an academic advisor in the College of Letters and Science (1117 Cheadle Hall).
- Visit Career Services (Building 599) to research career opportunities.

DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY
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University of California, Santa Barbara

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PRE-CHEMISTRY MAJOR, 2018-2019

Students are not admitted directly to the following majors: Biochemistry, B.S., Chemistry, B.S., Chemistry, B.A. Instead, they are first admitted to the Pre-Chemistry major, and they may advance to full major standing in one of these majors only after fulfilling the pre-major courses and grade requirements listed below.

A UC GPA of 2.00 or above in each of the six sequences of courses, considered separately, is required for advancement to full-major status. Acceptance into the pre-major does not guarantee admission to full major status. Upon satisfactory completion of the pre-major courses, students must complete a change of major petition, available in the Department of Chemistry and Biochemistry Student Affairs Office.

Note: Completion of the pre-major does not fully satisfy the *Preparation for the Major* requirements for the Biochemistry B.S., Chemistry B.S. or the Chemistry B.A. Students should review the full requirement sheet for the major they intend to declare and plan their schedules accordingly. At the time of the petition, they must also have a 2.0 or higher grade-point average in all courses attempted toward the major (preparation and upper-division).

PRE-MAJOR REQUIREMENTS	**UNITS YET TO COMPLETE**
Chemistry 1A or 2A, 1B or 2B, 1C or 2C	9_____
Chemistry 1AL, 1BL or 2BC, 1CL or 2CC	6_____
Chemistry 6AL and 6BL or 6BH	6_____
Chemistry 109A or 109AH, 109B or 109BH, 109C (or W 109C) or 109CH	12_____
Math 2A or 3A, 2B or 3B and 4A	12-14_____
Physics 1-2-3-4 or 6A-B-C	14 or 9_____

Note: Physics 1-2-3-4 is required for the Chemistry B.S. major

MAJOR REGULATIONS

PREREQUISITES ..... Check the *General Catalog* for the prerequisites to all listed courses.
P/NP GRADING OPTION ..... Not allowed for any major course (Prep or UD major), including courses applied to the major from other departments.
SUBSTITUTIONS ..... In the major requirements permissible only by petition to the department chair and dean.
RESIDENCE REQUIREMENTS ..... At least 20 UD units in major while in residence at UCSB.
G.P.A REQUIREMENTS ..... At least 2.0 overall UC average in **all** upper-division major courses and **all** courses (Prep and UD) for the major, including courses in excess of minimum requirements.
DOUBLE MAJORS ..... With the approval of each department chairperson, up to a total of 8 units may be applied simultaneously to both UD majors.

GPA Check for Pre-Chemistry Major
2018-2019

A UC GPA of 2.00 or above in each of the following six sequences of courses, considered separately, is required for advancement to full-major status:

Chemistry 1A or 2A, 1B or 2B, 1C or 2C ..... GPA: _____

Chemistry 1AL or 2AC, 1BL or 2BC, 1CL or 2CC ..... GPA: _____

Chemistry 6AL and 6BL (or 6BH) ..... GPA: _____

Chemistry 109A or 109AH, 109B or 109BH, 109C or 109CH..... GPA: _____

Math 2A-2B or 3A-3B, 4A ..... GPA: _____

Physics 1-2-3-4 or 6A-B-C ..... GPA: _____

✧ Completion of the pre-major does not fully satisfy the *Preparation for the Major* requirements for the Biochemistry B.S. or the Chemistry B.S. Review the full requirement sheet for the major you intend to declare and plan your schedule accordingly. In order to guarantee that you are on track for graduation, be sure to see the undergraduate advisor. Also please note that there are College and University Requirements not listed here or on the major sheets.

✧ At the time of the change of major petition, students must also have a 2.0 or higher grade-point average in all courses attempted toward the major (preparation and upper-division).

✧ Must be enrolled in a minimum of 12 units per quarter to be considered a full time student

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CHEMISTRY MAJOR, B.A. – 2018-2019

A UC GPA of 2.00 or above in each of the six sequences of courses, listed in Area I, is required for admission to the full Chemistry major. Acceptance into the pre-major does not guarantee admission to full major status. Upon satisfactory completion of the pre-major courses, students must complete a change of major petition, available in the Department of Chemistry and Biochemistry Student Affairs Office.

I. PRE-MAJOR REQUIREMENTS

UNITS YET TO COMPLETE

Chemistry 1A or 2A, 1B or 2B, 1C or 2C.....9_____

Chemistry 1AL, 1BL or 2BC, 1CL or 2CC.....6_____

Chemistry 6AL and 6BL or 6BH.....6_____

Chemistry 109A or 109AH, 109B or 109BH, 109C (or W 109C) or 109CH……..…….12_____

Math 2A or 3A, 2B or 3B, and 4A.....12-14_____

Physics 1-2-3-4 or 6A-B-C.....14 or 9_____

II. PREPARATION FOR THE MAJOR

The following course are not required to be admitted into the Chemistry B.A. major, but are required to complete the major.

Math 6A.....4_____

Physics 3L-4L or 6AL-BL-CL.....2 or 3_____

UPPER-DIVISION MAJOR

39 UD Chemistry units are required, distributed as follows:

Note: Transfer students receiving subject credit for Chemistry 109A-B-C and/or Chemistry 150 *must* complete a minimum of 39 UD units in the Department of Chemistry and Biochemistry.

A. Chemistry 109A or 109AH, 109B or 109BH, 109C (or W 109C) or 109CH, 113A-B-C, 150, 173A…..15-30_____

B. Chemistry 116AL and 116BL.....6_____

C. UD Chemistry electives.....3-18_____

The following courses **will not** apply toward the major: Chemistry 101, 102, 183, 184, 192, 193, 196, 198, and 199

Courses taken:_____

MAJOR REGULATIONS

PREREQUISITES..... Check the *General Catalog* for the prerequisites to all listed courses.
P/NP GRADING OPTION..... Not allowed for any major course (Prep or UD major), including courses applied to the major from other departments.
SUBSTITUTIONS..... In the major requirements permissible only by petition to the department chair and dean.
RESIDENCE REQUIREMENTS..... At least 20 UD units in major while in residence at UCSB.
G.P.A REQUIREMENTS..... At least 2.0 overall UC average in **all** upper-division major courses and **all** courses (Prep and UD) for the major, including courses in excess of minimum requirements.
DOUBLE MAJORS..... With the approval of each department chairperson, up to a total of 8 units may be applied simultaneously to both UD majors.

Sample Curriculum for B.A. Chemistry
2018-2019

Fall		Winter		Spring	
Course	(Units)	Course	(Units)	Course	(Units)
Year 1					
Chem 1A/2A	(3)	Chem 1B/2B	(3)	Chem 1C/2C	(3)
Chem 1AL/2AC	(2)	Chem 1BL/2BC	(2)	Chem 1CL/2CC	(2)
Math 2A/3A	(4-5)	Math 2B/3B	(4-5)	Math 4A	(4)
GEs	(4+)	Phys 1	(4)	Phys 2	(4)
GEs	(4+)	*or* 6A/6AL		*or* 6B/BL	
		GEs	(4+)	GEs	(4+)
Year 2					
Chem 109A/109AH	(4)	Chem 109B/109BH	(4)	Chem 109C/109CH	(4)
Phys 3	(3)	Chem 6AL	(3)	Chem 6BL	(3)
Phys 3L	(1)	Phys 4	(3)	GEs/UD Electives	(4+)
or 6C/CL		Phys 4L	(1)	GEs/UD Electives	(4+)
GEs	(4+)	GEs	(4+)		
Math 6A	(4)				
Year 3					
★Chem 113A	(4)	★Chem 113B	(4)	★Chem 113C	(4)
★Chem 150	(3)	★Chem 116AL	(3)	★Chem 116BL	(3)
GEs/UD Electives	(4+)	GEs/UD Electives	(4+)	GEs/UD Electives	(4+)
GEs/UD Electives	(4+)	GEs/UD Electives	(4+)	GEs/UD Electives	(4+)
Year 4					
★Chem 173A	(3)	GEs/UD Electives	(4+)	GEs/UD Electives	(4+)
GEs/UD Electives	(4+)	GEs/UD Electives	(4+)	GEs/UD Electives	(4+)
GEs/UD Electives	(4+)	GEs/UD Electives	(4+)	GEs/UD Electives	(4+)
GEs/UD Electives	(4+)	GEs/UD Electives	(4+)	GEs/UD Electives	(4+)

★Only offered in the quarter listed. 150 and 173A are also generally offered in the summer.

✧All Math and Physics courses from the preparation for the major need to be completed before 113A.

✧150 is a prerequisite to 116AL.

✧113B is a prerequisite to 116AL, but may be taken concurrently.

✧113ABC are prerequisites to 173A.

✧Must be enrolled in a minimum of 12 units per quarter to be considered a full time student.

✧This is a sample curriculum. In order to guarantee that you are on track for graduation, be sure to see the undergraduate advisor. Also please note that there are College and University Requirements not listed here.

GE: General Education Requirement
UD: Upper Division

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CHEMISTRY MAJOR, B.S. – 2018-2019

A UC GPA of 2.00 or above in each of the six sequences of courses, listed in Area I, is required for admission to the full Chemistry major. Acceptance into the pre-major does not guarantee admission to full major status. Upon satisfactory completion of the pre-major courses, students must complete a change of major petition, available in the Department of Chemistry and Biochemistry Student Affairs Office.

I. PRE-MAJOR REQUIREMENTS — UNITS YET TO COMPLETE

Chemistry 1A or 2A, 1B or 2B, 1C or 2C ..... 9 _____

Chemistry 1AL, 1BL or 2BC, 1CL or 2CC ..... 6 _____

Chemistry 6AL and 6BL or 6BH ..... 6 _____

Chemistry 109A or 109AH, 109B or 109BH, 109C (or W 109C) or 109CH ..... 12 _____

Math 2A or 3A, Math 2B or 3B, and 4A ..... 12-14 _____

Physics 1-2-3-4 ..... 14 _____

II. PREPARATION FOR THE MAJOR

The following courses are not required to be admitted into the Chemistry B.S. major, but are required to complete the major.

Chemistry 6CL or 6CH ..... 3 _____

Math 4B and 6A ..... 8 _____

Physics 3L-4L ..... 2 _____

UPPER-DIVISION MAJOR

45 UD Chemistry units are required, distributed as follows:

Note: Transfer students receiving subject credit for Chemistry 150 *must* complete a minimum of 45 UD units in the Department of Chemistry and Biochemistry.

A. Chemistry 113A-B-C, 142A (or W 142A), 150, and 173A-B ..... 21-24 _____

B. Chemistry 116AL-BL-CL ..... 9 _____

C. UD Chemistry electives, with no more than one course from Chemistry 110, 123 and 149 ..... 12-15 _____

The following courses **will not** apply toward the major: Chemistry 101, 102, 183, 184, 192, 193, 196, 198 and 199

Courses taken:_____

Note: By petition, some of the Area C elective units may be taken in other related departments.

MAJOR REGULATIONS

PREREQUISITES ..... Check the *General Catalog* for the prerequisites to all listed courses.
P/NP GRADING OPTION ..... Not allowed for any major course (Prep or UD major), including courses applied to the major from other departments.
SUBSTITUTIONS ..... In the major requirements permissible only by petition to the department chair and dean.
RESIDENCE REQUIREMENTS ..... At least 20 UD units in major while in residence at UCSB.
G.P.A REQUIREMENTS ..... At least 2.0 overall UC average in **all** upper-division major courses and **all** courses (Prep and UD) for the major, including courses in excess of minimum requirements.
DOUBLE MAJORS ..... With the approval of each department chairperson, up to a total of 8 units may be applied simultaneously to both UD majors.

Sample Curriculum for B.S. Chemistry
2018-2019

Fall		Winter		Spring	
Course	(Units)	Course	(Units)	Course	(Units)
Year 1					
Chem 1A/2A	(3)	Chem 1B/2B	(3)	Chem 1C/2C	(3)
Chem 1AL/2AC	(2)	Chem 1BL/2BC	(2)	Chem 1CL/2CC	(2)
Math 2A/3A	(4-5)	Math 2B/3B	(4-5)	Math 4A	(4)
GEs	(4+)	Phys 1	(4)	Phys 2	(4)
GEs	(4+)	GEs	(4+)	GEs	(4+)
Year 2					
Chem 109A/109AH	(4)	Chem 109B/109BH	(4)	Chem 109C/109CH	(4)
Phys 3	(3)	Chem 6AL	(3)	Chem 6BL	(3)
Phys 3L	(1)	Phys 4	(3)	GEs/UD Electives	(4+)
Math 4B	(4)	Phys 4L	(1)	GEs/UD Electives	(4+)
		Math 6A	(4)		
Year 3					
★Chem 113A	(4)	★Chem 113B	(4)	★Chem 113C	(4)
★Chem 142A	(3)	★Chem 116AL	(3)	★Chem 116BL	(3)
★Chem 150	(3)	GEs/UD Electives	(4+)	GEs/UD Electives	(4+)
Chem 6CL	(3)	GEs/UD Electives	(4+)	GEs/UD Electives	(4+)
GEs/UD Electives					
Year 4					
★Chem 173A	(3)	★Chem 173B	(3)	GEs/UD Electives	(4+)
★Chem 116CL	(3)	GEs/UD Electives	(4+)	GEs/UD Electives	(4+)
GEs/UD Electives	(4+)	GEs/UD Electives	(4+)	GEs/UD Electives	(4+)
GEs/UD Electives	(4+)	GEs/UD Electives	(4+)	GEs/UD Electives	(4+)

★Only offered in the quarter listed. 150 and 173A are also generally offered in the summer.

✧ All Math and Physics courses from the preparation for the major need to be completed before 113A.

✧ 150 is a prerequisite to 116AL.

✧ 113B is a prerequisite to 116AL, but may be taken concurrently.

✧ 113ABC are prerequisites to 173A.

✧ Must be enrolled in a minimum of 12 units per quarter to be considered a full time student.

✧ This is a sample curriculum. In order to guarantee that you are on track for graduation, be sure to see the undergraduate advisor. Also please note that there are College and University Requirements not listed here.

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BIOCHEMISTRY MAJOR, B.S. – 2018-2019

A UC GPA of 2.00 or above in each of the six sequences of courses listed in Area I, is required for admission to the full Biochemistry major. Acceptance into the pre-major does not guarantee admission to full major status. Upon satisfactory completion of the pre-major courses, students must complete a change of major petition, available in the Department of Chemistry and Biochemistry Student Affairs Office.

I. PRE-MAJOR REQUIREMENTS — UNITS YET TO COMPLETE

Chemistry 1A or 2A, 1B or 2B, 1C or 2C ..... 9_____
Chemistry 1AL, 1BL or 2BC, 1CL or 2CC ..... 6_____
Chemistry 6AL and 6BL or 6BH ..... 6_____
Chemistry 109A or 109AH, 109B or 109BH, 109C (or W 109C) or 109CH ..... 12_____
Mathematics 2A or 3A, 2B or 3B, and 4A ..... 12-14_____
Physics 1-2-3-4 or 6A-B-C ..... 14 or 9_____

II. PREPARATION FOR THE MAJOR

The following courses are not required to be admitted into the Biochemistry B.S. major, but are required to complete the major.

Mathematics 6A ..... 4_____
Physics 3L-4L or 6AL-BL-CL ..... 2 or 3_____
MCDB 1A-1B, EEMB 2, and either (MCDB 1AL and MCDB 1BL or EEMB 2L) or MCDB 1LL ..... 11.5-12_____

UPPER-DIVISION MAJOR

46 UD units required, distributed as follows:

A. Chemistry 112A, 112B, 112C, 142A (or W 142A), 142B, 142C, and 173A ..... 24_____

B. Chemistry 110L, 112L, and 125L ..... 11_____

C. Six units from the following core electives: Chemistry 141, 143, 145, 146, 147, 151, 154A, 154B, 161, 162A, 162B, 171, 181 ..... 6_____

D. Five additional units from C above, or the following, with no more than one course from Chemistry 110, 123 and 149: Chemistry 110, 111, 113AL, 115A, 115B, 115C, 117A, 118, 120, 123, 124, 126 (provided 145 has not been taken), 127, 128, 129, 132, 133, 134, 149, 150, 153, 163, 173B, 175, 176, 186; MCDB 101B, 103, 126B, 126C, 134, 135 ..... 5_____

MAJOR REGULATIONS

PREREQUISITES ..... Check the *General Catalog* for the prerequisites to all listed courses.
P/NP GRADING OPTION ..... Not allowed for major courses (prep or UD), including courses applied to the major from other departments.
SUBSTITUTIONS ..... In the major requirements permissible only by petition to the department chair and dean.
RESIDENCE REQUIREMENTS ..... At least 20 UD units in major while in residence at UCSB.
G.P.A REQUIREMENTS ..... At least 2.0 overall UC average in **all** upper-division major courses and **all** courses (Prep and UD) for the major, including courses in excess of minimum requirements.
DOUBLE MAJORS ..... With the approval of each department chairperson, up to a total of 8 units may be applied.

Sample Curriculum for B.S. Biochemistry
2018-2019

Fall		Winter		Spring	
Course	(Units)	Course	(Units)	Course	(Units)
Year 1					
Chem 1A/2A	(3)	Chem 1B/2B	(3)	Chem 1C/2C	(3)
Chem 1AL/2AC	(2)	Chem 1BL/2BC	(2)	Chem 1CL/2CC	(2)
Math 2A/3A	(4-5)	Math 2B/3B	(4-5)	Math 4A	(4)
Phys 6A/6AL	(4)	Phys 6B/6BL	(4)	Phys 6C/6CL	(4)
GEs	(4+)	GEs	(4+)	GEs	(4+)
Year 2					
Chem 109A/109AH	(4)	Chem 109B/109BH	(4)	Chem 109C/109CH	(4)
★MCDB 1A/1AL	(5)	Chem 6AL	(3)	Chem 6BL	(3)
GEs	(4+)	★MCDB 1B	(3)	Math 6A	(4)
GEs	(4+)	★EEMB 2	(3)	GEs/UD Electives	(4+)
		★(MCDB 1BL/EEMB 2L) or MCDB 1LL	(1-1.5)		
Year 3					
★Chem 112A	(4)	★Chem 112B	(4)	★Chem 112C	(4)
★Chem 142A	(3)	★Chem 142B	(3)	★Chem 142C	(3)
★Chem 110L	(4)	★Chem 125L	(4)	★Chem 112L	(3)
GEs/UD Electives	(4+)	GEs/UD Electives	(4+)	GEs/UD Electives	(4+)
Year 4					
★Chem 173A	(3)	GEs/UD Electives	(4+)	GEs/UD Electives	(4+)
GEs/UD Electives	(4+)	GEs/UD Electives	(4+)	GEs/UD Electives	(4+)
GEs/UD Electives	(4+)	GEs/UD Electives	(4+)	GEs/UD Electives	(4+)
GEs/UD Electives	(4+)	GEs/UD Electives	(4+)	GEs/UD Electives	(4+)

★ Only offered in the quarter listed. 173A is also generally offered in the summer.

✧ **All Math and Physics** courses from the preparation for the major need to be completed before 112A.

✧ If you plan to take Physics 1-2-3-3L-4-4L, please see the undergraduate advisor for scheduling.

✧ 142A is a prerequisite to 110L, but may be taken concurrently.

✧ 110L and 142AB are prerequisites to 125L. 142B may be taken concurrently with 125L.

✧ 112A, 110L, and 142ABC are prerequisites to 112L. 142C may be taken concurrently with 112L.

✧ 112ABC are prerequisites to 173A.

✧ Must be enrolled in a minimum of 12 units per quarter to be considered a full time student.

✧ This is a sample curriculum. In order to guarantee that you are on track for graduation, be sure to see the undergraduate advisor. Also please note that there are College and University Requirements not listed here.

GE: General Education Requirement
UD: Upper Division

Office of Undergraduate Education
College of Letters and Science
University of California, Santa Barbara

QTR ____ ADV ____ LI ____ LO ____ CM DM ET CST DC

UNDERGRADUATE PETITION TO CHANGE MAJOR, EMPHASIS, OR COLLEGE

Please read all instructions on reverse side completing this form. Please print neatly.

Name_____ Perm#_____
Last First Middle

U-mail Address _____@umail.ucsb.edu Phone ( )_____

Unit Standing: ❑ FR (0-44.9) ❑ SO (45-89.9) ❑ JR (90-134.9) ❑ SR (135+)

Expected date of graduation: _____, _____ Current quarter candidacy? ❑ Y ❑ N
QTR YR

Please note the change in major, college or emphasis you wish to pursue, and the catalog year for the major

FROM: [❑Pre]_____ and [❑Pre]_____
CURRENT MAJOR CURRENT DOUBLE MAJOR

_____ _____
EMPHASIS EMPHASIS
❑Creative Studies ❑Engineering ❑ Letters & Science ❑Creative Studies ❑Engineering ❑ Letters & Science

TO: [❑Pre]_____, _____ and [❑Pre] _____, _____
PROPOSED MAJOR catalog year PROPOSED DOUBLE MAJOR catalog year

_____ _____
EMPHASIS EMPHASIS
❑Creative Studies ❑Engineering ❑ Letters & Science ❑Creative Studies ❑Engineering ❑ Letters & Science

_____
Student Signature Date

Approval of chair(s) of department(s) that sponsor proposed major(s)

_____ _____ _____
Signature of chair Department Date

_____ _____ _____
Signature of chair Department Date

Approval of the dean of the college is required for students who have completed more than 134.9 units, those who are changing to undeclared, those pursuing a double major, and those who are changing college (including adding a major in a new college).

_____ _____ _____
Signature of dean of present college Date catalog year

_____ _____ _____
Signature of dean of proposed college Date catalog year

Registrar's use only: MVS/PRC handled _____ Data entry _____

INSTRUCTIONS for completing your

Undergraduate Petition to Change Major, Emphasis, or College

1. Print your full name, perm number, u-mail address, and current local telephone number clearly where indicated.
2. Indicate your current unit standing by checking the appropriate box.
3. Print the title and emphasis of your current major(s) and the title, emphasis, *and catalog year* of your proposed major(s). (Your change of major cannot be processed without the catalog year. The catalog year is normally the academic year in which you first declare your major or pre-major.)
4. Sign and date the petition.
5. To drop one major from a double major, you need only your own signature. Submit your completed petition to the Office of the Registrar.
6. Secure signatures as follows:
   - chair of the department(s) that sponsor your proposed new major(s)
   - dean of your college(s) *if you are changing from one college to another, pursuing a double major or dual college double major, have completed more than 134.9 units, or if you are changing to undeclared.*

☑ **NOTE:**

In most cases, you will leave the petition in the department that sponsors your proposed major, and the department will forward the approved petition to the Office of the Registrar. This is true if you meet both of the following criteria:

- You are changing from one major to another within the College of Letters and Science.
- You have not yet completed 135 units.

Enrollment & Waiting List Policies

To be fair to all students, enrollment is handled exclusively through GOLD, on a first come, first serve basis. We are unable to assist students in getting back into courses they accidentally dropped, or were dropped from due to billing/collection issues. Do not contact the instructor, teaching assistant or undergraduate advisor for an approval code. Refer to our department website for more information regarding waitlist and crashing policies. (http://www.chem.ucsb.edu/undergrad/advising)

GENERAL CHEMISTRY ENROLLMENT POLICIES:

1. Pass 1 priority:
    - Chemistry and Biochemistry (all majors)
    - College of Engineering (following majors): Chemical Engineering, Electrical Engineering, Computer Engineering, Mechanical Engineering
    - College of Creative Studies: Chemistry and Biochemistry
    - Earth Science (all majors)
    - Ecology, Evolution, Marine Biology (all majors)
    - Environmental Studies (all majors)
    - Geography (following majors): Physical Geography
    - Molecular, Cell, Developmental Biology (all majors)
    - Physics (all majors)
    - Psychology (following majors): Psychological and Brain Sciences BS, Biopsychology

2. Students in Earth Science and Physical Geography BS majors must email **ugrads@chem.ucsb.edu** from their UMAIL address* with the following information for an approval code for Chem 1A/1B/1C (lectures, not labs) ***during Pass 1 only***:
    - Full Name
    - Perm Number
    - The course in which you are hoping to enroll (please include first and second preferences for lecture courses)

    *Sending multiple emails will slow down the process and move you to a lower priority.
3. Majors not listed above, including undeclared, must wait until Pass 2 to enroll.

4. You must add the lecture (Chem 1A/1B/1C) before adding the lab (1AL/1BL/1CL). If you drop the lecture, you will be automatically dropped from the lab. If you drop the lab, you will not be automatically dropped from the lecture. You can find more information about course prerequisites in the general catalog: https://www.sa.ucsb.edu/parents/Academics/UCSBGeneralCatalog.aspx

ORGANIC CHEMISTRY ENROLLMENT POLICIES:

1. Enrollment during Pass 1 is limited to the following:
    - 6AL/BL:
        - Chemistry and Biochemistry (all majors)
        - College of Engineering (following majors):
            - Chemical Engineering
        - College of Creative Studies (following majors):
            - Chemistry and Biochemistry
2. Undeclared students, or students in majors not listed above, must wait until Pass 2 to enroll.

WAITING LIST POLICIES:

1. Waiting lists will be made available once a course is full. Students must be registered in 12 units to view the waiting list.
2. To increase your chances of securing a seat, <u>all sections</u> that fit into your schedule should be selected. <u>Do not</u> select a section if you are not able to attend at the specified day/time.
3. Students will be auto-added from the waiting lists as spaces become available.
4. Waiting lists will close:
    - At the end of the 5th Day of Instruction for:
        - Chem 1A-B-C
        - Chem 109A-B-C
        - Chem 6AL (no labs during the first week)
    - Prior to the first day of instruction for:
        - Chem 1AL-BL-CL
        - Chem 6BL

CRASHING POLICIES - LABS:

1. If you are not auto-added to the course prior to the waiting list closing, you MUST crash the course in order to remain eligible to enroll.
2. Attendance on the first day of lab is required; if you do not attend, you will be dropped.
3. You do not need to be on the Waiting List to crash courses, though students on the Waiting List will receive priority.
4. You may continue to crash labs until the add deadline (typically the 3rd week of class).
5. Chem 6AL: Do not crash during the first week.
6. Chem 1AL/1BL/1CL/6AL/6BL: All crashers must meet in front of the Undergraduate Stockrooms (General Chemistry: 2nd floor stockroom, Organic Chemistry: in PSB-N Breezeway) to sign a crash list.
7. Approval codes (via UMAIL account ONLY) will be distributed as spaces become available; you must enroll within 24 hours or your space will be offered to another student.
8. Do not contact the course instructor, teaching assistant or undergraduate advisor for approval codes.

SWITCHING SECTIONS POLICY:

1. If you are enrolled in a section, DO NOT crash another section to obtain an approval code.
2. If the course is open on GOLD, and there is a space in the section you would like to switch into, you can change sections by selecting the "SWITCH" button. Do not drop your current section you will lose your space in the course.
3. If you are able to find another student to switch sections with, you both will need to fill out a Lab Switch Form in Building 232.
4. Students are prohibited from switching ORGANIC labs once the first experiment has been completed.

UNDERGRADUATE RESEARCH

http://www.chem.ucsb.edu/undergrad/research

GETTING STARTED

1**. Make a list** of the subjects that really interest you and that you'd like to explore.

2. **Decide what you could gain** from working on a project—such as simply learning more about a field of study, being better prepared for a future career, and working closely with faculty and graduate students who can offer professional guidance and mentoring.

3. **Check out UCSB web pages** to identify researchers working on projects that interest you. You might want to sit in on an upper-division class to get a sense of a subject's scope.

4. **Tell your professors of your interest** after class or during office hours. Make a specific appointment to discuss.

Before your appointment, read about the general research area and, perhaps, read one or two published papers before your meeting. Published papers are listed on faculty web pages.

Develop a description of up to a page explaining why you want to do research and why a faculty mentor should want to work with you. Include information on your major, if you have identified it; background courses you have taken; and time availability and commitment (number of quarters you will be available; hours per week; times available). Be sure the faculty member knows how to get in touch with you.

5. **Talk with the academic adviser in your major**. (And don't limit your thinking to just one discipline. Most UCSB professors work in at least two fields, and 20 percent of all faculty have appointments in more than one department.)

Pre-Requisites: You must earn a 3.0 grade point average or higher for three consecutive quarters before you start research. This shows that you have the potential to understand the concepts you need to succeed in your research. You will need to be able to manage your time and balance your class work and research to maintain a 3.0 GPA.

Graduate schools require a 3.0 grade point average to be accepted into their programs. You will also need to take GRE exams and have letters of recommendation from faculty members. You need research experience to show that you understand the commitment required to becoming a successful graduate student.

Research Opportunities

For more information, visit the College of Letters and Science webpage: http://www.duels.ucsb.edu/ and the Career Services webpage: http://career.sa.ucsb.edu/students/career-counseling.

- Undergraduate Research and Creative Activities (URCA)
- Faculty Research Assistance Program (FRAP)
- General Undergraduate Research at UCSB
- STEM Undergraduate Research Programs
- Resources for Healthcare Professions
- Internships for MCDB, Chemistry, and Biochemistry Majors

Academic Integrity at UCSB – A Student's Guide

As a UCSB student, and future graduate and holder of a degree from UCSB, it is important to protect the value of the degree you are working towards. We all play a part in this. Honesty and integrity in your own academic work, and holding peers to the same standards, are ways to do your part in maintaining the esteemed reputation of the campus and desirability of a UCSB degree. Students are expected to refrain from cheating and plagiarism, refuse to aid or abet any form of academic dishonesty, and notify professors of any knowledge one has about cheating, plagiarism, or collusion.

Papers, examinations, laboratory reports, and homework must always be your own work. Cheating, plagiarism, and collusion are all forms of academic dishonesty and are violations of the Student Conduct Code. Students found responsible for these violations face possible suspension or dismissal from the University.

TYPES OF ACADEMIC DISHONESTY

Cheating - unauthorized use of information in any academic exercise, including, but

not limited to:

- Copying from others during an examination
- Sharing answers for homework, lab reports, or a take-home examination
- Using unauthorized notes during an examination
- Taking an examination for another student
- Asking or allowing another student to take an examination for you
- Tampering with an examination after it has been corrected, then
- returning it for more credit than deserved
- Submitting substantial portions of the same academic work for credit in
- more than one course without consulting with the second instructor (and
- the first instructor if the courses are concurrent at UCSB)
- Preparing answers or writing notes in a blue book before an examination
- Allowing others to do the research and writing of an assigned paper (for
- example, using the services of a commercial term paper company), or
- doing the research or writing for another student's assigned paper
- Sending electronic messages to another student during an examination
- Stealing or using another student's paper or examination and claiming it
- as your own

Plagiarism/Internet Plagiarism - the use of another's idea or words without proper attribution or credit. An author's work is his/her property and should be respected by documentation. Students should always ask their instructors how sources are to be cited if this information is not provided. Internet sources must always be cited, even if the author is unknown. Citations must be given for every direct quotation, when a work is paraphrased or summarized in whole or in part in your own words, and for information which is not common knowledge.

Collusion – assisting someone else in cheating or plagiarizing. Any student who helps another student to perform any of the above acts, knowingly or unknowingly, is subject to campus discipline for academic dishonesty. There is no distinction between those who cheat and plagiarize and those who knowingly allow it to occur.

All students are expected to protect their academic work from easy theft. This includes, not showing a paper or examination to another student without first receiving permission from the instructor of the course, and protecting academic work that may be accessed by other students electronically or otherwise. For example, posting course notes or materials (either your own or those owned by the instructor or teaching assistants) to any commercial online study resource, or failing to protect your own work from being copied (leaving your exam within view of others, loaning your computer to another student without securing your academic work, etc.).

For more information, please visit: http://judicialaffairs.sa.ucsb.edu.

Campus-Wide Resources

CAPS- Counseling and Psychological Services

- Licensed psychologists and stress peer advisors provide students with one-to-one personal and confidential support at Counseling Services.

Career Services

- Provides students with many job search preparation services, including interviewing skills, networking, and resume and cover letter assistance.

CLAS – Campus Learning Assistance Services

- Offers group tutorials, drop-in help sessions, learning skills workshops, writing labs, and tutoring services to help students succeed in their classes.

DSP – Disabled Students Program

- Staff members assist permanently and temporarily disabled students in their success at UC Santa Barbara.

EOP – Educational Opportunity Program

- Encourages student involvement on campus and a sense of community and empowerment among students.

MCC – Multicultural Center

- Strives to promote a sense of belonging among students of color, international students, and gay, lesbian, and bisexual students.

OSL – Office of Student Life

- Provides a variety of valuable services to students, including campus room scheduling, organizational advising and leadership development.

OISS – Office of International Students

- Provides services and programs to meet the cross-cultural and immigration needs of international students and scholars.

RCSGD – Resource Center for Sexual and Gender Diversity

- Serves the lesbian, gay, bisexual, transgender, intersex, queer, questioning and ally community with the goal of enhancing safety, acceptance, and life quality at UCSB

Information provided by: http://www.sa.ucsb.edu/parents/StudentServices.aspx

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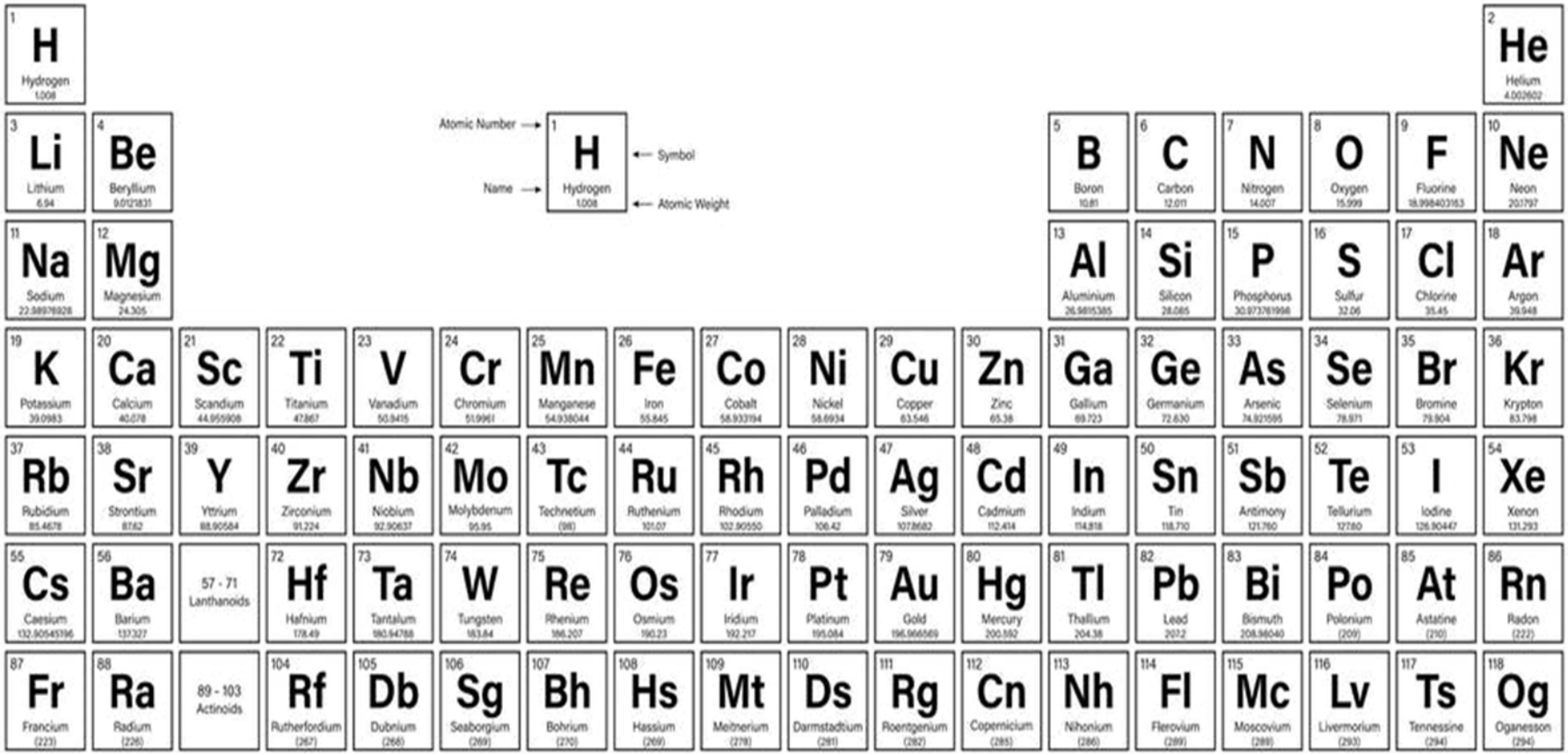
Periodic Table of the Elements




Violet Parking at all times for faculty (A permit) and staff (B permit) only.
Orange Parking for residential students with the appropriate RS permit.
For updated parking information, please visit our web site at www.tps.ucsb.edu
Uyesaka Stadium
Recreation Center
Pool
Athletic Fields
Mosher Alumni House
Mesa
INFORMATION KIOSK
VISITOR CENTER
University Plaza
Ocean Road
El Colegio Road
Mesa Road
Orfalea Center for Global and International Studies
Robertson Gym
Intercollegiate Athletics
Audit & Advisory Services
Student Affairs & Admin. Services
Campbell Hall
Phelps Hall
CHEMISTRY BLDG 232
Cheadle Hall
Coral Tree Café
Engineering Science
Elings Hall
Henley Gate
Steck Circle
Chemistry
Physical Sciences North
Physical Sciences South
Engr II
Courtyard Café
Kohn Hall
Ward Memorial Blvd.
Lagoon Road
North Hall
Ellison Hall
Buchanan Hall
Koegel Autism Center
Education
Gevirtz Graduate School of Education
Social Sciences and Media Studies
Pollock Theater
Kerr Hall
South Hall
Arbor
El Centro
Broida Hall
MRL
Harold Frank Hall
Davidson Library
Events Center
AS Bike Shop
Pool
Humanities and Social Sciences
Counseling & Career Services
Girvetz Hall
Webb Hall
Bren Hall
Noble Hall
Student Resource
Auditorium
Theater and Dance East
Theater and Dance West
Arts
Art Museum
Storke Tower
Arts Library
Music
Lotte Lehmann Concert Hall
Psych
Psych East
Life Sciences
Bio SIF
Bio II
Marine Science Research
Ocean Science Education
(under construction)
UCEN Road
Faculty Club
University Center
Corwin Pavilion
Loading Dock
MCC
Faculty Club Green
UNIVERSITY CENTER
Ortega
Anacapa Hall
Santa Rosa Hall
San Miguel Hall
De La Guerra
Santa Cruz Hall
San Nicolas Hall
San Rafael Hall
Loma Pelona
Channel Islands Road
RESTRICTED AREA
ENFORCED AT ALL TIMES
PARKING DESIGNATIONS
Permit required at all times.
C Commuting Student & Visitor
RS2 Residential Student
22RS Residential Student