

MOLECULAR CELLULAR AND DEVELOPMENTAL BIOLOGY

<http://www.mcdb.ucsb.edu>

College of Letters and Science

University of California, Santa Barbara

Student Name: _____ Perm: _____ Qtr/Yr Enrolled: _____

M.A. Plan (select one):

- M.A. Plan I (Thesis): Minimum of **30.0** units, distributed as outlined below and a research thesis required
- M.A. Plan II (Examination): Minimum of **36.0** units, distributed as outlined below, and internship required

MASTER OF ARTS – MOLECULAR, CELLULAR AND DEVELOPMENTAL BIOLOGY
Emphasis in Pharmacology and Biotechnology – 2021-22

In addition to departmental requirements, candidates for graduate degrees must fulfill University requirements described in the “Graduate Education” section of the UCSB General Catalog.

<https://my.sa.ucsb.edu/catalog/Current/GraduateEducation/DoctoralDegreeRequirements.aspx>

M.A. students are required to demonstrate competency in fundamental areas of Molecular, Cellular and Developmental Biology by achieving an average of a B- or better in the core courses. It is expected that all M.A. students are enrolled as full-time students and earn a minimum of 12 course units each quarter.

The Emphasis in Pharmacology and Biotechnology involves faculty from the departments of MCDB, Chemistry, Psychological and Brain Sciences, and the interdepartmental graduate program in Biomolecular Science and Engineering (BMSE). The interdisciplinary nature of the program allows students to gain a broad understanding of topics relevant to the pharmaceutical/biotechnology industries including molecular pharmacology, drug design, large scale production of protein-based therapeutics, molecular modeling, animal models as behavioral screens for psychotherapeutic drugs, and current methods in biotechnology. The program features a structured set of courses which are taught individually and collaboratively by faculty from a variety of disciplines. Additional summer internships in the pharmaceutical and biotechnology industry, or thesis projects in an academic setting give students an opportunity to gain experience in the field. This Emphasis meets the growing need of the pharmaceutical and biotechnology industries for scientists with a master’s degree in the area of pharmacology and biotechnology.

CORE COURSES (13.0 units)				
COURSE #	COURSE NAME	UNITS	QTR/YR	GRADE
MCDB 229	Protein Biochemistry	2	F	
MCDB 218A	Experimental Strategies in Molecular Genetics	3	F	
MCDB 218B	Biochemical Techniques	5	F	
MCDB 260	Research Strategies in MCD Biology	1	FWS yr 1)	

ELECTIVE COURSES (Plan I: 7.0-13.0 units; Plan II: 14.0-15.0 units)
<p>Electives should be taken from a selection of graduate courses chosen from the MCDB, Chemistry and Biochemistry, and Psychology departments. The electives are grouped into three tracks, established to reflect the three traditional areas of research in the field of pharmacology and biotechnology, and serve as a guideline for students to help shape their curriculum. The electives are flexible to allow students to explore different areas of pharmacology. Students who have not previously completed 8 units from the courses MCDB 126, 126B, 126AL-BL are required to include at least 8 units from MCDB 226, 226B, 226AL-BL in their electives.</p> <p>Plan I students are required to take a minimum of 7 units from among the tracks. Plan II students are required to take at least 8 units of electives in one of the tracks, and the remainder of the electives may be taken from among any of the tracks.</p> <p>Recommended Courses for the Tracks:</p> <p><u>Molecular and Cellular Biology</u> MCDB 203, 208AL, 222, 226, 226B, 226AL-BL, 233, 245, 246, 247, 251, 252, 253, 293</p> <p><u>Chemistry and Biochemistry</u> BMSE 201A-B, 203, 204, 205A-B, 207, 250, 251, 252, 253, CHEM 241, 243, 245, 246, 261, 262A-B</p> <p><u>Neurobiology and Behavior</u> MCDB 251, 252, 253. PSY 215, 219, 221A-B, 231, 235, 268, 269</p>

COURSE #	COURSE NAME	UNITS	QTR/YR	GRADE

LITERATURE COURSES				
Plan I: 1.0 unit				
Plan II: 1.0-2.0 units				
MCDB 265, 266, 268, 595				
COURSE #	COURSE NAME	UNITS	QTR/YR	GRADE

Research / Internship				
Plan I: up to 6.0 units				
Plan II: 4.0 units				
<p>Plan I: Thesis research: up to 6 units of MCDB 596 may be counted towards the degree for Plan I students.</p> <p>Plan II: Internship research: 4 units of MCDB 596. Internship in an industry or academic laboratory will give students an opportunity to gain research experience in an industry setting. The internship is expected to last for a minimum of 10-12 weeks, and is expected to be an independent research project under the supervision of an experienced researcher at the company or academic laboratory. A report by the student is due at the end of the term, describing the research project, and the outcome. The results of the project also should be communicated with a poster and/or PowerPoint presentation under the supervision of a graduate review committee. A short evaluation of the student's performance by their supervisor is to be included in the student's report.</p>				
COURSE #	COURSE NAME	UNITS	QTR/YR	GRADE
MCDB 596				

SEMINAR REQUIREMENTS (No credit towards degree unit requirements for MCDB 260, 262, 263 or 269)		
Students are expected to enroll quarterly and attend MCDB 262 (Research Progress in MCDB (FNS)) as well as MCDB's weekly research seminars MCDB 260 and MCDB 263 each quarter until completion of degree.		
COURSE #	REQUIREMENT	FULFILLED:
MCDB 262	FNS Seminar, each quarter; Research Progress in MCDB	
MCDB 263	Research Seminar, each quarter; Progress in Biochemistry and Molecular Biology	

Teaching Assistantships

Teaching Assistantships are not a requirement of the Plan I or Plan II M.A. degree. Students with Teaching Assistant (TA) appointments must complete the appropriate TA orientation and techniques courses (MCDB 500 and 502; taken once, without degree credit). When serving as a TA, students should enroll in the TA practice course (MCDB 501) for the appropriate number of units (maximally 4 units for a 50% TAship; without degree credit).

M.A. Plan I (Thesis)

Students will complete the degree once all core course and elective requirements are met and the written thesis is approved by the Thesis Committee.

Thesis Committee: Chair: _____

Member: _____

Member: _____

Date Requirements Completed: _____

M.A. Plan II (Examination)

Students will complete the degree once all core course, elective, and internship requirements are met.

Date Requirements Completed (mm/dd/yy): _____

<p>M.A. DEGREE REQUIREMENTS SATISFIED: _____ <div style="text-align: right; margin-left: 300px;">Quarter/Year</div></p> <p>DEPT GRADUATE ADVISOR SIGNATURE: _____</p> <p style="text-align: right; margin-right: 100px;">_____ Print Name</p>
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FOR GRADUATE DIVISION USE ONLY	
Residence requirement-minimum 3 quarters	
Required units completed	
Language requirement Satisfied <i>(if required)</i>	
No grades of I, NR, or NG	
3.0 or better GPA overall	
Registered quarter of degree or Filing Fee LOA: _____	
Master's Form I / COI and committee entered	
Master's Thesis date received <i>(signature page/e-filed and entered in SReg)</i> : _____	
Master's Thesis Submission Fee: _____	
ProQuest ID _____ Permission Ltrs uploaded?	
Master's Degree Awarded (mm/dd/yy)	