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.

<table>
<thead>
<tr>
<th>CORE COURSES (13.0 units)</th>
<th>COURSE NAME</th>
<th>UNITS</th>
<th>QTR/yr</th>
<th>GRADE</th>
</tr>
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<tbody>
<tr>
<td>MCDB 229 Protein Biochemistry</td>
<td>2</td>
<td>F</td>
<td></td>
<td></td>
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<tr>
<td>MCDB 218A Experimental Strategies in Molecular Genetics</td>
<td>3</td>
<td>F</td>
<td></td>
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<tr>
<td>MCDB 218B Biochemical Techniques</td>
<td>5</td>
<td>F</td>
<td></td>
<td></td>
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<tr>
<td>MCDB 260 Research Strategies in MCD Biology</td>
<td>1</td>
<td>FWS yr 1</td>
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</tbody>
</table>

**ELECTIVE COURSES (Plan I: 7.0-13.0 units; Plan II: 14.0-15.0 units)**

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.**

- **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.

**Recommended Courses for the Tracks:**

- **Molecular and Cellular Biology**
  - MCDB 203, 208AL, 222, 226, 226B, 226AL-BL, 233, 245, 246, 247, 251, 252, 253, 293
- **Chemistry and Biochemistry**
- **Neurobiology and Behavior**
  - MCDB 251, 252, 253, PSY 215, 219, 221A-B, 231, 235, 268, 269


**COURSE #** | **COURSE NAME** | **UNITS** | **QTR/YR** | **GRADE**
---|---|---|---|---

**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): ________________________________

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**M.A. DEGREE REQUIREMENTS SATISFIED:** ________________________________ Quarter/Year

**DEPT GRADUATE ADVISOR SIGNATURE:** ________________________________

Print Name

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**FOR GRADUATE DIVISION USE ONLY**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residence requirement-minimum 3 quarters</td>
<td>Required units completed</td>
</tr>
<tr>
<td>Language requirement Satisfied <em>(if required)</em></td>
<td>No grades of I, NR, or NG</td>
</tr>
<tr>
<td>3.0 or better GPA overall</td>
<td>Registered quarter of degree or Filing Fee LOA:</td>
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<tr>
<td>Master’s Form I / COI and committee entered</td>
<td>Master’s Thesis date received <em>(signature page/e-filed and entered in SReg)</em>:</td>
</tr>
<tr>
<td>Master’s Thesis Submission Fee:</td>
<td>ProQuest ID __________________________ Permission Ltrs uploaded?</td>
</tr>
</tbody>
</table>

Master’s Degree Awarded (mm/dd/yy)