

# University of California, San Diego



Guidelines for Students and Faculty  
2024-2025

Website: <http://biomedsci.ucsd.edu>

UC San Diego Campus Mail Code #0685

# **BMS** Biomedical Sciences GRADUATE PROGRAM

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## **1. INTRODUCTION**

The UCSD Biomedical Sciences (BMS) Graduate Program is guided by two interlocking principles: (1) We aim to provide world-class training in modern, multidisciplinary biomedical science; (2) We aim to provide a supportive, inclusive environment where students can develop a network of peers and mentors, explore their potential through scientific research, and emerge as leaders in the field of their choice.

BMS Leadership and Staff is dedicated to supporting our students throughout their time at UCSD. At the same time, much of the responsibility for ensuring your progress toward a PhD will fall on you (the student). As such, you are responsible for familiarizing yourself with BMS requirements and timelines (as outlined here), and with the requirements of the Division of Graduate Education and Postdoctoral Affairs (GEPA), as detailed here:

<https://grad.ucsd.edu>

### **1.A. UCSD 2024/25 COVID-19 GUIDANCE**

#### **Public Health Expectations and Best Practices**

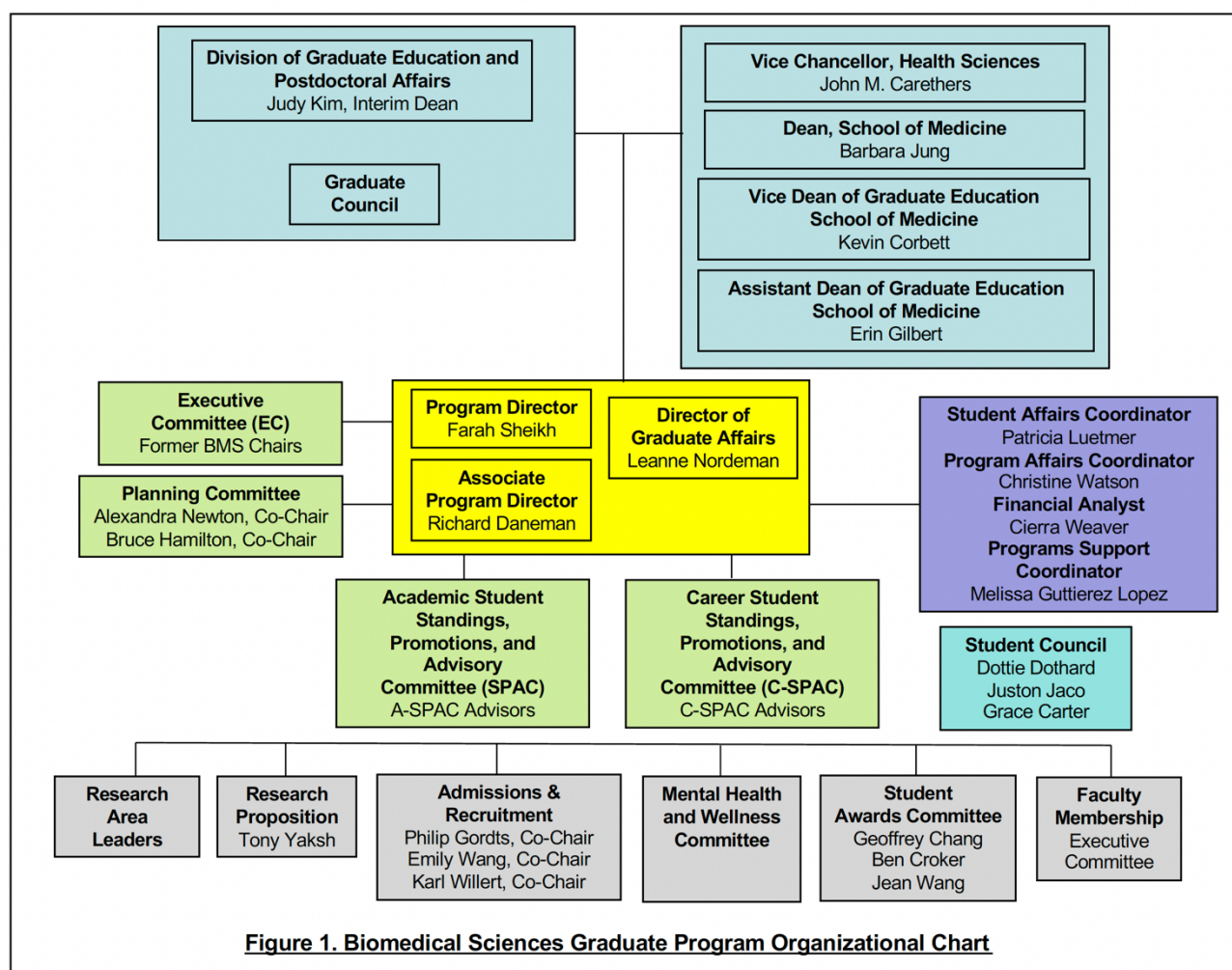
Public health is a collective effort. Keeping the UC San Diego community healthy takes all of us following campus safety requirements to help prevent infection. You are also expected to follow university public health requirements and pursue personal protection practices to protect yourself and others.

See the UCSD COVID-19 Campus Resources and Guidelines page at <https://blink.ucsd.edu/safety/resources/public-health/covid-19/index.html> for current information and guidelines.

## 1.B. ORGANIZATION OF THE BIOMEDICAL SCIENCES GRADUATE PROGRAM

The Biomedical Sciences (BMS) PhD Program is sponsored by the UC San Diego Health Sciences, including the School of Medicine (SOM) and the Skaggs School of Pharmacy and Pharmaceutical Sciences (SSPPS). The program offers broad opportunities for advanced studies in diverse biomedical research disciplines. The program is designed to develop research scientists who will be well-equipped with the knowledge and the skills to solve biomedical problems creatively and independently in the public and the private sectors. A particularly attractive feature of the program is its multidisciplinary character, providing students with a broad choice of faculty and laboratories for research training.

The operation of the BMS Graduate Program is overseen by the Program Director, Associate Program Director, and a series of committees as outlined in the **organizational chart** below:



**The Executive Committee** includes former BMS Chairs who remain active BMS faculty members. The committee oversees programmatic and fiscal developments, evaluates the applications of new faculty members, and reviews existing program faculty members (and has the authority to terminate faculty membership in the BMS program).

**The Admissions and Recruiting Committee** oversees the admissions process in the winter and recruiting efforts throughout the year.

**The Planning Committee** provides input on the training opportunities and initiatives for BMS students and plays an important role in overseeing the student/training aspects of the BMS program.

**The Awards Committee** oversees the selection of awardees and presents the awards at the BMS annual retreat.

**The Academic Student Standing, Promotions and Advisory Committee (A-SPAC)** provides an important advisory system for students, particularly during their first year in the program. The SPAC committee provides guidance to incoming first-year students in their selection of classes and thesis advisors, and thereafter serves an impartial advisory function as needed.

**The Career Student Standing, Promotions and Advisory Committee (C-SPAC)** is a complement to the "Academic Standing, Promotion, and Advisory Committee" (A-SPAC) advisory program. C-SPAC advisors will provide students an additional resource to help them address topics relevant to their professional development and career goals that they may not wish to discuss, or feel uncomfortable discussing, in their primary training setting.

**The Mental Health and Wellness Committee (MHW)** is a group of students, faculty, and staff dedicated to enhancing the mental health and well-being of our graduate student body

Currently, there are over 200 BMS faculty members from UC San Diego and the neighboring Sanford Burnham Prebys Medical Discovery Institute, Salk Institute, and La Jolla Institute for Immunology. The BMS program is organized into nine Research Areas: **Cancer Biology, Cell and Developmental Biology, Computational Biology & Data Science, Genetics & Genomics, Immunology, Microbiome & Microbial Sciences, Molecular & Structural Biology, Molecular Pharmacology & Drug Discovery, and Neurobiology of Disease.** Five cross-disciplinary training programs are also available in the areas of **Glycobiology, Quantitative Biology, Anthropogeny, Multi-Scale Biology,** and the **Program in Immunology.** The list of BMS faculty members and their web pages are found at the BMS website: <https://biomedsci.ucsd.edu/faculty/>

## **1.C. STUDENT EXPECTATIONS AND RESPONSIBILITIES**

### ***Academics and Progress through the Program***

All BMS students are required to complete and sign the **BMS Student Responsibilities Guide** upon joining the program. This guide outlines expectations for prompt communication (through the student's @health.ucsd.edu email address), enrollment and maintenance of good academic standing, rotation and thesis laboratory choice, and requirements for continued financial support by the BMS program.

## ***University and Community Service***

The overall success of the Biomedical Sciences PhD program and the wider academic community at UCSD is only made possible through the dedicated service of faculty, staff, and students. Members of the BMS community, including BMS graduate students, are encouraged to serve their community by engaging with on-campus groups, BMS committees and activities (e.g., participation in graduate recruiting, serving on the BMS Mental Health and Wellness Committee, or serving on BMS Student Council), and/or campus-wide committees (e.g., GPSA) during their PhD training. These service roles provide valuable training in team-based decision making and overall organizational strategies that are beneficial for nearly all career paths. Students should identify service roles that fit their desired time commitment and interests. While the BMS program expects that most students will serve in some capacity during their training, it is not a program requirement, and each service role is entirely voluntary. All service roles should be performed with the knowledge that contributions toward establishing stronger community are valued by all community members.

### **1.D. FACULTY EXPECTATIONS AND RESPONSIBILITIES**

As valued members of the BMS community, BMS faculty members are encouraged to participate in BMS governance through the multiple leadership committees, teach in core and elective courses, and provide strong, supportive mentorship for students in their labs. Participation in BMS social events, including the annual retreat and faculty-student mixers throughout the year, is also strongly encouraged as it fosters a sense of connection and promotes informal mentoring opportunities.

We strongly encourage faculty to take advantage of mentorship training opportunities at UCSD, including the FMTP program (<https://hsfacultyaffairs.ucsd.edu/faculty-development/fmtp/index.html>) and others. We encourage faculty to foster a supportive and inclusive training environment in their labs. We encourage faculty to communicate clearly with their trainees, through (for example) a written laboratory policies/expectations document and regular one-on-one or small-group meetings.

## **2. ADVISORY SYSTEM**

During the first year of study and prior to the selection of their thesis advisors, BMS students are guided by their assigned advisors from the A-SPAC committee. Student advising will be transferred to the thesis advisors after the students enter the thesis research laboratories. Student advising will be expanded to include faculty members of the student's thesis committee following the Research Proposition exam. Students are free to contact the Program Director and Associate Program Director of the BMS program for advice on concerns that cannot be resolved by their A-SPAC or Thesis Advisors.

### **2.A. FIRST YEAR ADVISORS**

Students enter the BMS program prior to choosing a thesis laboratory. Each entering student is assigned an advisor from the Academic Student Standing, Promotions and Advisory Committee (A-SPAC). A-SPAC advisors provide counsel on course work and laboratory rotations, evaluate students' progress in the curriculum, and advise students in the selection of their thesis advisors.

A-SPAC advisors and students should meet at least twice per quarter until a student chooses a thesis advisor. A-SPAC advisors remain important resources for their advisees throughout their time at UCSD.

The responsibilities of A-SPAC advisors are:

1. In consultation with the student, develop a laboratory rotation program during the Fall, Winter and Spring quarters of the student's first year, to provide the student with optimal exposure to the research disciplines that match their research interests.
2. Guide the student in their selection of a thesis advisor.
3. Determine that the student is making satisfactory progress in meeting the program requirements, including completion of core and advanced courses.

### **2.B. C-SPAC ADVISORS**

For the 2024-2025 academic year, BMS is introducing a new mentoring committee called C-SPAC. The goal of C-SPAC is to provide BMS students an additional resource to help them address topics relevant to their professional development and career goals that they may not wish to discuss, or feel uncomfortable discussing, in their primary training setting.

### **2.C. THESIS ADVISORS**

The primary advisors of BMS students are their thesis advisors. Students are expected to enter the laboratories of their thesis advisors no later than June 30th of the academic year in which they join the program.

The responsibilities of the Thesis Advisors are:



1. Provide for the financial support of the student. The BMS program will support the first-year students for 10 months during their rotations through different research labs, with support ending June 30 of the year following their entry into the program. Thereafter, the thesis advisor is expected to be fully responsible for the student (the precise amounts needed to support a student, which vary annually, are clarified at the start of the rotation and stated on the thesis advisor selection form). Faculty without stable funding should not take rotation students unless the rotation is for training purposes and both the student and faculty are aware of the situation. Faculty and students should communicate openly about whether the faculty member can support the student prior to the student rotating in the lab or joining a thesis lab. If the faculty member loses funding during the time a student is in their lab, it is the responsibility of the faculty member to find alternative sources of support.
2. Guide the student in the development of a research project that is original, feasible, and will lead to peer-reviewed publication(s) and a PhD thesis.
3. Determine that the student is making progress in meeting the PhD requirements, including:
  - (a) timely completion of the Research Proposition Qualifying examination by December 1st of the student's second year in the program,
  - (b) timely completion of the Advancement to Candidacy examination by the end of the Spring quarter of the student's third year in the program,
  - (c) timely submission of a formal annual evaluation of the student's research progress by the end of each Spring quarter beginning in the student's second year in the program (this evaluation is a requirement for the student's registration for the following year), and
  - (d) yearly thesis committee meetings, during which the student updates the thesis committee on the status of their work. The committee meeting ideally occurs in conjunction with the annual evaluation, due in the Spring quarter.
4. In consultation with the student, select a series of advanced courses to expand the student's knowledge in the areas that are relevant and/or complementary to the student's Thesis research project.
5. Guide the student in developing skills tailored to their individual career goals, including (but not limited to) oral and written communication and teaching/mentorship.

## **2.D. SWITCHING THESIS ADVISORS**

Occasionally, personal or scientific differences arise between a student and their thesis advisor that may require a student to switch thesis labs. If this situation arises, the student is encouraged to communicate openly about their concerns with their thesis advisor, to determine whether internal changes are sufficient. If not, the student and/or thesis advisor should contact the student's A-SPAC advisor and/or the Program Director for guidance.

In cases where a student and their thesis advisor determine that the best course is for the student to switch labs, BMS will support the student for a limited rotation period, usually not exceeding one academic quarter, to identify a new thesis laboratory.

Upon switching labs, a student and their new thesis advisor should develop a thesis plan that accounts for the shorter-than-usual time to graduation, so that the student's graduation is not significantly delayed.

### 3. COURSE SEQUENCE

#### 3.A. REQUIRED COURSES

| <b>YEAR 1</b>  |   |       |              |
|--|---|-------|--------------|
| Course #   | Title   | Units | Evaluation   |
| <b>FALL QUARTER</b>  |   |       |              |
| BIOM 200A  | Molecules to Organisms: Concepts                | 6     | Letter grade |
| BIOM 200B  | Molecules to Organisms: Approaches              | 2     | Letter grade |
| BIOM 201   | Seminar in Biomedical Research                  | 4     | Letter grade |
| BIOM 202   | Laboratory Rotation (one 12-week or two 6-week) | 4     | S/U          |
| BIOM 203A  | Topics in Biomedical Sciences                   | 1     | S/U          |
| <b>WINTER QUARTER</b>  |   |       |              |
| BIOM 200C  | Intro to Computational Biology                  | 4     | Letter grade |
| <i>OR</i>  |   |       |              |
| BIOM 262   | Quantitative Methods in Genetics                | 4     | Letter grade |
| <i>AND</i>   |   |       |              |
| BIOM 202   | Laboratory Rotation (one 12-week or two 6-week) | 4     | S/U          |
| BIOM 203B  | Topics in Biomedical Sciences                   | 1     | S/U          |
| BIOM 275   | Seminars in Pharmacology                        | 2     | Letter grade |
| Advanced Course  |   | 3+    | Letter grade |
| <b>SPRING QUARTER</b>  |   |       |              |
| BIOM 202   | Laboratory Rotation (one 12-week or two 6-week) | 4     | S/U          |
| BIOM 219   | Ethics in Scientific Research*                  | 1     | S/U          |
| *Ethics requirement will be met in either Spring or Fall depending on assignment.                        |   |       |              |
| BIOM 272 or 274  | Seminars in Genetics/MCDB                       | 2     | Letter grade |
| BIOM 285   | Statistical Inference                           | 2     | Letter grade |
| Advanced Course  |   | 3+    | Letter grade |
| <b>SUMMER QUARTER</b>  |   |       |              |
| BIOM 293   | Grant Writing Essentials**                      | 1     | S/U          |
| Choose lab by June 30th and devote full time to thesis work. Begin working on Research Proposition Exam. |   |       |              |
| **Enrollment will be during the Fall quarter, but the course will take place in summer.                  |   |       |              |

| <b>YEAR 2</b>   |                                |       |              |
|---|--------------------------------|-------|--------------|
| Course #  | Title                          | Units | Evaluation   |
| <b>FALL QUARTER</b>   |                                |       |              |
| BIOM 296  | Research Proposition           | 4     | S/U          |
| BIOM 219  | Ethics in Scientific Research* | 1     | S/U          |
| *Ethics requirement will be met in either Spring or Fall depending on assignment. |                                |       |              |
| BIOM 298  | Thesis Research                | 12    | Letter grade |

| WINTER QUARTER                                     |    |              |
|--|----|--------------|
| BIOM 298 Thesis Research                           | 12 | Letter grade |
| Advanced Course (Can be taken in Winter or Spring) | 3+ | Letter grade |
| SPRING QUARTER                                     |    |              |
| BIOM 298 Thesis Research                           | 12 | Letter grade |
| Advanced Course (Can be taken in Winter or Spring) | 3+ | Letter grade |
| Appointment of Official Thesis Committee           |    |              |

### **3.A. REQUIRED COURSES** (cont.)

#### **YEARS 3-6**

Before Advancement to Candidacy, students enroll in BIOM 298 (Directed Study, 12 units, letter grade) each quarter.

Following Advancement to Candidacy, students enroll in BIOM 299 (Independent Study, 12 units, letter grade) each quarter until graduation.

### **3.B. ADVANCED COURSES**

Students are required to take three graduate-level Advanced Courses (courses must be at least 3 units each) for a letter grade (A-F). Two of these courses must be taken in the Winter and Spring quarters of a student's first year (courses in the BIOM 250-series are considered "core" BMS courses and are strongly encouraged to be taken in the first year). The third advanced course can be taken anytime during a student's graduate training but is encouraged to be taken in the Winter or Spring of the second year). Advanced courses are chosen in consultation with the A-SPAC Advisor and Thesis Advisor; all advanced courses should be relevant to the student's course of study. Students should survey the graduate level course listings offered at UC San Diego through TritonLink for options and availability provided by other graduate programs at the University. Students can take any graduate-level course offered on the general campus or in the School of Medicine, as well as applying for UC San Diego Extension courses.

### **3.C. TRAINING PROGRAMS AND SPECIALIZATIONS**

Sections (3.A) and (3.B) above outline the minimum requirements for graduation in the BMS program. NIH T32 training programs and UCSD graduate specializations may have additional requirements.

### **3.D. RESEARCH ROTATION AND INDEPENDENT STUDY COURSE SYLLABI**

The following pages contain course syllabi for BIOM 202 (Biomedical Sciences Research Rotation), BIOM 298 (Independent Study for students pre-advancement to candidacy), and BIOM 299 (Independent Study for students post-advancement to candidacy). These are broadly defined syllabi that apply to all BMS graduate students, and should not be tailored or customized for individual laboratories.

## **BIOM 202 COURSE SYLLABUS**

**Course Title:** Biomedical Sciences Research Rotations

**Course Code:** BIOM 202

**Contact Information:**

Course Instructor: Kevin Corbett, CMM-E 2058, kcorbett@health.ucsd.edu

### **Course Description:**

Biomedical Sciences Research Rotations (BIOM 202) provides training and instruction for first-year doctoral students in the theory and techniques that pertain to the research area of a potential thesis research laboratory. In this course, the student will undertake a small project under the direct supervision of the principal investigator and laboratory research staff. The objective of this introductory project is to gain a better understanding of theoretical and practical aspects of the research in the host laboratory. In BIOM 202, the student should participate in the research project and gain new knowledge and training. It is not necessary for the student to generate new research results or to complete the assigned project.

**Prerequisites:** Admission to the Biomedical Sciences Ph.D. program. Enrollment requires permission of the instructor.

**Units:** 4 units. Students should enroll in 4 units each quarter. Each unit represents 3 hours or more of academic activity per week, as outlined by UC San Diego Academic Senate and the Western Association of Schools and Colleges (WASC) credit-hour policy. Therefore, 4 units correspond to 12 hours or more of academic activity per week, for each week of the quarter.

### **Grading:**

S/U grades only

### **Course Topics:**

1. Introduction to General Research Topic
  - Learning the general research area of the host laboratory
  - Reading of landmark research articles and general review articles associated with the research interests of the host laboratory.
2. Background to Specific Research Project
  - Learning the specific background knowledge that pertains to the research project.
  - Reading the specific relevant research articles and review articles
3. Research Objective of Course Project
  - Learning how the research project would address specific gaps in knowledge.
  - Understanding the context and conceptual framework of the project
4. Research Participation
  - Participating in the research project with supervision
  - Learning how to perform experimental techniques.

- Learning how to collect and to analyze data.
- 5. Research Ethics and Responsible Conduct of Research
  - Ethical principles in research
  - Professional conduct in workplace
  - Professional and respectful communication skills
  - Plagiarism and intellectual property rights
- 6. Writing and Presenting Research Findings
  - Learning and developing scientific writing skills
  - Learning and practicing oral presentation skills

### **Learning Outcomes:**

Upon completion of the course, the student will have gained skills and knowledge in most or all the following areas.

1. General research area of the host laboratory
2. Specific research topic of the course project
3. Design of experiments that address gaps in knowledge.
4. New experimental techniques and methods
5. Collection, analysis, and interpretation of data
6. Responsible conduct of research
7. Written and oral presentation of scientific research

### **Assessment Methods:**

1. Laboratory Participation (50%): Evaluation of the student's laboratory preparation participation, attention to laboratory safety, and practice of the responsible conduct of research.
2. Written Report (25%): A brief written summary of the background and research objectives of the project and, if appropriate (*i.e.*, optional), the description and interpretation of new results.
3. Oral Presentation (25%): An oral presentation that describes the background and research objectives of the project and, if appropriate (*i.e.*, optional), the description and interpretation of new results.

### **Resources and Materials:**

All resources and materials will be provided by the laboratory. Students will be taught the specific protocols and techniques relevant to their project. Instruction will be carried out by the course instructor and laboratory personnel.

### **Additional Information:**

Students are expected to maintain a safe and respectful environment in the lab. All safety procedures should be strictly followed. There are regular meetings with the course instructor to ensure proper guidance and instruction.

### **Campus Policies**

- [UC San Diego Principles of Community](#)
- [UC San Diego Policy on Integrity of Scholarship](#)
- [Religious Accommodation](#)
- [Nondiscrimination and Harassment](#)
- [UC San Diego Student Standards of Conduct](#)



## **BIOM 298 COURSE SYLLABUS**

**Course Title:** Directed Study

**Course Code:** BIOM 298

**Contact Information:**

Course Instructor: Student's Thesis Advisor or Co-Advisor

### **Course Description:**

Directed Study in Biomedical Sciences (BIOM 298) provides doctoral students with the opportunity to conduct research in the biomedical sciences. This course will facilitate the development of critical thinking and problem-solving skills, proficiency in using modern research tools and techniques, and the rigorous interpretation of data in the context of the current literature. It emphasizes active involvement in research projects, and students are encouraged to develop their own research questions. Ethical issues and the responsible conduct of research will be incorporated throughout the course. Training on ensuring rigor and reproducibility for research results will be emphasized.

**Prerequisites:** Admission to the Biomedical Sciences Ph.D. program. Enrollment requires permission of the instructor, typically the thesis advisor.

**Units:** Up to 12 units. Each unit represents 3 hours or more of academic activity per week, as outlined by UC San Diego Academic Senate and the Western Association of Schools and Colleges (WASC) credit-hour policy. Therefore, 12 units correspond to 36 hours or more of academic activity per week for each week of the quarter.

### **Grading:**

Letter grades only

### **Course Topics:**

1. Research Methods
  - Overview of research paradigms and approaches
  - Formulating research questions and objectives
  - Understanding the research process
2. Literature Review and Conceptual Framework
  - Conducting a comprehensive literature review
  - Critical analysis of the relevant published data
  - Identifying research gaps and justifying the research study
  - Developing a conceptual framework
3. Research Design and Data Collection
  - Design of experimentation
  - How to perform experimental techniques
4. Data collection methods
  - Data Analysis and Interpretation

- Quantitative data analysis
- Qualitative data analysis
- Interpreting research findings and drawing conclusions.
- 5. Research Ethics and Responsible Conduct of Research
  - Ethical principles in research
  - Professional conduct in workplace
  - Professional and respectful communication skills
  - Plagiarism and intellectual property rights
- 6. Writing and Presenting Research Findings
  - Scientific writing skills
  - Effective data visualization and graphical representation
  - Oral presentation skills

### **Learning Outcomes:**

Upon completion of the course, the student will have enhanced and further developed skills in the following areas.

1. Formulation of a research hypothesis in the context of current knowledge
2. Determination of scientific approaches to testing a research hypothesis
3. Proper experimental design that ensures rigor and reproducibility
4. Performing experiments that incisively address a research hypothesis
5. Use of the highest level of rigor and technical skill in experimentation
6. Analysis and interpretation of experimental data
7. Development of alternative hypotheses and explanations that explain experimental results.
8. Synthesis of experimental results with current literature to formulate new scientific knowledge and hypotheses.
9. Written and oral presentation of research findings (communication skills)
10. Consideration and incorporation of ethical issues in research

### **Assessment Methods:**

1. Laboratory Performance (50%): Evaluation of students' laboratory techniques, data collection and analysis, problem-solving skills, attention to laboratory safety, laboratory attendance, practice of the responsible conduct of research, and lab meeting participation.
2. Written Research Report (25%): A written report that includes the background & significance, initial plans, new results, data analysis and interpretation, and future plans.
3. Oral Presentation (25%): An oral presentation that contains background & significance, initial plans, new results, data analysis and interpretation, and future plans.

### **Resources and Materials:**

All resources and materials will be provided by the laboratory. Students are expected to familiarize themselves with the specific protocols and techniques relevant to their project. The course instructor and laboratory personnel are available for consultation and support.

**Additional Information:**

Students are expected to maintain a safe and respectful environment in the lab. All safety procedures should be strictly followed. Also, while this course is largely self-directed, regular meetings with the course instructor are required to ensure progress and proper guidance and instruction.

**Campus Policies**

- [UC San Diego Principles of Community](#)
- [UC San Diego Policy on Integrity of Scholarship](#)
- [Religious Accommodation](#)
- [Nondiscrimination and Harassment](#)
- [UC San Diego Student Standards of Conduct](#)

## **BIOM 299 COURSE SYLLABUS**

**Course Title:** Independent Study

**Course Code:** BIOM 299

**Contact Information:**

Course Instructor: Student's Thesis Advisor or Co-Advisor

### **Course Description:**

Independent Study (BIOM 299) provides doctoral students with the opportunity to conduct advanced research in the biomedical sciences. This course will facilitate the development of critical thinking and problem-solving skills, independent research skills, proficiency in using modern research tools and techniques, and the rigorous interpretation of data in the context of the current literature. It emphasizes active involvement in research projects, and students are encouraged to develop their own research questions. Ethical issues and the responsible conduct of research will be incorporated throughout the course. Training on ensuring rigor and reproducibility for research results will be emphasized.

**Prerequisites:** Advancement to Candidacy in the Biomedical Sciences Ph.D. program. Enrollment requires permission of the instructor, typically the thesis research advisor.

**Units:** Up to 12 units. Each unit represents 3 hours or more of academic activity per week, as outlined by UC San Diego Academic Senate and the Western Association of Schools and Colleges (WASC) credit-hour policy. Therefore, 12 units correspond to 36 hours or more of academic activity per week for each week of the quarter.

### **Grading:**

Letter Grade Required

### **Course Topics:**

1. Research Methods
  - Overview of research paradigms and approaches
  - Formulating research questions and objectives
  - Understanding the research process
2. Literature Review and Conceptual Framework
  - Conducting a comprehensive literature review
  - Critical analysis of the relevant published data
  - Identifying research gaps and justifying the research study
  - Developing a conceptual framework
3. Research Design and Data Collection
  - Design of experimentation
  - How to perform experimental techniques
4. Data collection Method/Data Analysis and Interpretation

- Quantitative data analysis
- Qualitative data analysis
- Interpreting research findings and drawing conclusions.
- 5. Research Ethics and Responsible Conduct of Research
  - Ethical principles in research
  - Professional conduct in workplace
  - Professional and respectful communication skills
  - Plagiarism and intellectual property rights
- 6. Writing and Presenting Research Findings
  - Scientific writing skills
  - Effective data visualization and graphical representation
  - Oral presentation skills

### **Learning Outcomes:**

Upon completion of the course, the student will have enhanced and further developed skills in the following areas.

1. Formulation of a research hypothesis in the context of current knowledge
2. Determination of scientific approaches to testing a research hypothesis
3. Proper experimental design that ensures rigor and reproducibility
4. Performing experiments that incisively address a research hypothesis
5. Use of the highest level of rigor and technical skill in experimentation
6. Analysis and interpretation of experimental data
7. Development of alternative hypotheses and explanations that explain experimental results.
8. Synthesis of experimental results with current literature to formulate new scientific knowledge and hypotheses.
9. Written and oral presentation of research findings (communication skills)
10. Consideration and incorporation of ethical issues in research

### **Assessment Methods:**

1. Laboratory Performance (50%): Evaluation of students' laboratory techniques, data collection and analysis, problem-solving skills, attention to laboratory safety, and practice of the responsible conduct of research. Regular laboratory attendance and participation is required as is attendance for any scheduled laboratory meetings. Performance metrics can include development and utilization of project-specific methodologies, successful organization of research activities, and acquisition of background knowledge through current literature review.
2. Written Research Report (25%): A written report that includes the background & significance, initial plans, new results, data analysis and interpretation, and future plans.
3. Oral Presentation (25%): An oral presentation that contains background & significance, initial plans, new results, data analysis and interpretation, and future plans.

**Resources and Materials:**

All resources and materials will be provided by the laboratory. Students are expected to familiarize themselves with the specific protocols and techniques relevant to their project. The course instructor and laboratory personnel are available for consultation and support.

**Additional Information:**

Students are expected to maintain a safe and respectful environment in the lab. All safety procedures should be strictly followed. Also, while this course is largely self- directed, regular meetings with the course instructor are required to ensure progress and proper guidance and instruction.

**Campus Policies**

- [UC San Diego Principles of Community](#)
- [UC San Diego Policy on Integrity of Scholarship](#)
- [Religious Accommodation](#)
- [Nondiscrimination and Harassment](#)
- [UC San Diego Student Standards of Conduct](#)

## 4. LABORATORY ROTATION PROGRAM

### 4.A. OVERVIEW

The laboratory rotation program is offered to PhD students during their first year of study. A laboratory rotation is designed to introduce students to new techniques and concepts. It should also expose students to the creative aspects of experimental design. Furthermore, the rotations provide the student with the opportunity to explore potential thesis research projects and to work with potential thesis advisors and their research groups.

*NOTE:* MSTP and PharmD students are expected to have completed laboratory rotations before entering the BMS program. PhD students who enter the program as direct admits do not rotate, instead joining their thesis labs directly in the fall of their first year.

The specific guidelines for the research rotation program are:

1. The first rotation must be with a BMS program faculty member listed in the BMS faculty directory: <https://biomedsci.ucsd.edu/faculty/>. 6-week rotations are recommended but students can choose to conduct rotations of either 6 or 12 weeks in length.
2. Students must participate in rotations throughout their first year, unless they have identified a thesis advisor and entered their laboratory.
3. The duration of each rotation will be determined by agreement between the student and the rotation advisor prior to the onset of the rotation. Changes in the duration of a rotation are discouraged after the student joins the rotation lab.
4. Students must complete at least two rotations with BMS faculty members. Rotations with non-BMS faculty members that have a UCSD academic appointment are allowed, contingent on the approval of the student's A-SPAC advisor and the BMS Program Director
5. Leanne will send the rotation agreement forms to rotation advisors for completion with a copy sent to the student and A-SPAC Advisor.
6. Students can enter a thesis laboratory as early as the end of the Winter quarter (March 30, 2025) after completing two quarters of rotations. For example, four 6-week rotations, two 12-week rotations, or some combination thereof.
7. Students must enter laboratories of their thesis advisors by the end of their first Spring quarter (June 30, 2025, for students entering in Fall 2024). The BMS program limits student support through the end of their first academic year (June 30, 2025, for students entering in Fall 2024).

Exceptions to the rotation program policy require the approval of the A-SPAC advisor and BMS Program Director

#### **4.B. DEVELOPING A ROTATION PLAN**

Students are required to discuss their plans for rotations with their A-SPAC advisors. The BMS website posts rotation projects submitted by faculty members. Access to these project descriptions will be password-protected and only available to BMS students who are participating in the Research Rotation Program. It is the student's responsibility to approach faculty members and to make the appropriate arrangements for each rotation, e.g., beginning date, duration, project, readings and laboratory orientation. Once discussed with the potential rotation advisor, the rotation plan must be approved by the student's A-SPAC advisor before the student can begin the rotation. Students should discuss with potential Rotation Advisors, whether the faculty member has funding to support the student for their thesis research prior to the student joining the laboratory. If funding is uncertain, the student should carefully consider whether they should rotate in the laboratory, in consultation with the A-SPAC advisor. A student can pursue an 'educational' rotation only if they have identified a thesis lab prior to completing the BMS rotation requirements; such a rotation does not come with the expectation that the rotation mentor has the resources to support a student for thesis work. All educational rotations require approval by the BMS Program Director.

#### **4.C. RESPONSIBILITIES OF ROTATION ADVISORS**

The success of the rotation program depends on thoughtful and conscientious participation by both students and faculty. BMS faculty should post rotation project descriptions on the BMS website if they are interested in having students rotate in their laboratories. Access to the project descriptions will be password-protected and only available to first-year students who are participating in the Research Rotation program. Rotation projects should be designed to introduce students to new concepts and techniques and allow students to design and conduct experiments. Rotations should not be designed simply "to get more results" for the labs, although carefully constructed rotation projects will often lead to interesting results. Bench and desk space, reagents, and other necessary materials as well as access to laboratory personnel should be provided for each rotation student to allow integration of the rotation student into the research laboratory. Most importantly, unless designated as an educational rotation (which requires prior approval) faculty should not take rotation students if they do not have funding to support a student's thesis work.

#### **4.D. REQUIRED NUMBER OF ROTATIONS & PETITIONS FOR ADDITIONAL ROTATIONS**

Each student must complete two quarters of rotations before joining a thesis lab. The first rotation must be with a BMS faculty member. Thereafter, students can choose to rotate in non-BMS labs contingent upon the approval of their A-SPAC advisor and the BMS Program Director. Students must complete the rotation program by the end of their first



Spring quarter and no later than June 30th of the academic year in which they enter the program.

Students unable to enter a thesis laboratory by June 30th must file a petition for additional rotations through the BMS office. The student's A-SPAC advisor and the BMS Program Director will review the petition for additional summer rotations. If the petition is approved, a student can conduct 1 or 2 rotations in the summer months. Failure to enter a thesis laboratory by August 31 of the year following their entry will result in termination of the student's enrollment in the BMS program.

#### **4.E. SUMMER ROTATION POLICY**

BMS does not support research rotations during the summer prior to a student's admission to the program.

## 5. TEACHING EXPERIENCES

### 5.A. UCSD TEACHING ASSISTANTSHIPS

The BMS Program strongly supports our student's interest in teaching. Teaching opportunities are available through various divisions and departments on campus including the School of Biological Sciences and the Department of Chemistry and Biochemistry. Typically, applications are required during the summer prior to the academic year in which a student is interested in teaching.

During the quarter in which a student is serving as a teaching assistant, they are appointed by the course's home department as an Academic Student Employee (ASE). While appointed as an ASE, students cannot also be appointed as Graduate Student Researchers (GSR).

**Please note that students supported on training grants or individual fellowships (and appointed as a GSR Trainee or GSR Fellow) cannot serve as a TA during the academic year (Fall, Winter, Spring).**

For the 2024-2025 academic year, BMS will provide a \$1,250 lump-sum payment to students taking on an official teaching assistant position in a UCSD undergraduate course during the fall, winter, or spring quarters. This lump-sum payment is separate from the UC-UAW negotiated ASE pay rate that will be provided by the hiring department. All BMS and students that have joined a lab are eligible to receive this incentive up to once per academic year. Participation is optional and should be discussed with your PI prior to applying.

Students interested in teaching in the School of Biological Sciences should visit this web site for information on eligibility, application timing, employment, and more: [Biological Sciences Instructional Assistant opportunities for Graduate Students](#).

Students interested in teaching in the Department of Chemistry & Biochemistry should visit this web site for information on eligibility, application timing, employment, and more: [Department of Chemistry and Biochemistry Teaching Assistant Information](#).

### 5.B. IN-DEPTH TEACHING EXPERIENCES

For students who are particularly interested in teaching careers, UCSD offers programs for in-depth teaching experiences. The [Summer Graduate Teaching Scholars](#) program offers opportunities for advanced graduate students (who typically have served as a TA at least once) to gain mentored teaching experience while serving as the instructor of record for a UC San Diego undergraduate course. In certain cases, students with extensive teaching experience may serve as the instructor of record for a course outside the STGS program; interested students should contact BMS staff about this option.

### **5.C. VOLUNTEER & OUTREACH OPPORTUNITIES**

Students may also participate in Outreach activities including, but not limited to the following programs:

1. [Salk Mobile](#)
2. [Academic Connections](#)
3. STARS Program
4. [BioEASI Jail Outreach Program](#)

## **6. PROGRESS TOWARD THE DEGREE**

### **6.A. TIME TO DEGREE AND LIMITATIONS**

The Division of Graduate Education and Postdoctoral Affairs (GEPA) at UC San Diego has established a general "Policy on Time Limits to the PhD" These strictly enforced University-wide time limits are:

|                        |   |
|------------------------|---|
| Financial support:     | 7 years/21 quarters (end of Spring Quarter) |
| Total registered time: | 8 years/24 quarters (end of Spring Quarter) |

BMS program graduate students are expected to progress in their study with an accelerated timeline and are considered in "good standing" when these milestones are completed within the following timeframe:

|                            |                           |
|----------------------------|---------------------------|
| Research Proposition Exam: | 2nd year (Fall Quarter)   |
| Advancement to candidacy:  | 3rd year (Spring Quarter) |
| PhD thesis defense:        | Year 5-7                  |

### **6.B. SELECTION OF A THESIS LABORATORY**

Each student selects the laboratory in which they will conduct thesis research after completion of the required rotations no later than June 30<sup>th</sup> of the academic year in which they enter the program. The thesis advisor selection must be approved by the A-SPAC advisor and the BMS Program Director. It is strongly encouraged that students select a BMS faculty member to serve as their thesis advisor. However, if after completing the requirement for two rotations in laboratories of BMS members, a student wishes to work with a non-BMS faculty member that has an appointment at UC San Diego, the student must consult with their A-SPAC advisor and the BMS Program Director to request approval. Please note that such arrangements require the appointment of a Thesis Committee Co-Chair who is a BMS Program faculty member.

Following selection of a thesis laboratory, the responsibility for the student's progress in the program changes from the A-SPAC advisor to the thesis advisor. However, students are encouraged to contact their A-SPAC advisors at any time for additional information and input, and the A-SPAC advisor should maintain contact with their advisees at least until they advance to candidacy.

Students who choose non-BMS mentors should:

1. Maintain regular contact with the Co-Chair of their thesis committee. The student should meet with the Co-Chair at least twice per year for guidance in the program and, in addition, regularly communicate with their A-SPAC advisor for additional information.
2. Stay involved with the BMS Program (e.g., retreat, recruiting events, seminars, journal clubs, lunch talks).
3. Regularly attend seminars and journal clubs to round out their training experience.

## 6.C. QUALIFYING FOR A BIOMEDICAL SCIENCES PHD

Qualifying for a BMS PhD consists of two parts: the Research Proposition, and the Advancement to Candidacy. Both are focused on the student's work that will comprise the original research whose completion will lead to granting of a PhD degree. The goal of these qualifying steps is to ensure attainment of skills needed to identify significant research problems, collect and integrate diverse scientific information, and to develop sound and creative experimental designs to test a scientific hypothesis.

### 6.C.1. RESEARCH PROPOSITION

**Purpose:** The Research Proposition is a grant-writing exercise that will take place during the Fall quarter of the 2nd year, *in lieu of* a comprehensive Qualifying Exam. The purposes of the Research Proposition are:

1. to get the student and Thesis advisor to work together at an early stage to develop the student's Thesis research project.
2. to have each student choose potential members of his/her Thesis Committee early in the graduate career.
3. to teach/develop the student grant writing and oral presentation skills.
4. to test the student's grasp of core material relating to the student's research project
5. to provide the basis for a fellowship application

**Definition of terms and Responsibilities:** This BMS requirement is known as the Research Proposition Qualifying Exam (BIOM 296, 4 credits).

#### BIOM 296 Course Chair

This person, appointed by the director of the BMS graduate program, oversees this course. For the past 11 years and in 2025, the chair is Tony Yaksh, Ph.D. (tyaksh@ucsd.edu). His staff support is Patricia Luetmer (pluetmer@health.ucsd.edu).

**Responsibilities:** Provides organization oversight for the course. Responsible for seeing students from the start of the course through to the completion of the final research proposition examination.

#### Thesis advisor

This person is selected by the student. *The thesis advisor must have a UCSD appointment and be appointed in the BMS program.* If the thesis advisor is not in the BMS program, then there must be a co-advisor also appointed who does have a BMS appointment.

**Responsibilities:** This individual provides guidance, financial support and laboratory facilities for the student's research leading to the thesis.

## Research Proposition Committee

The *Research Proposition committee* is composed of the Research proposition chair and two Research Prop Committee members. The Research Proposition Committee (the Research Proposition chair and the two members) will be responsible for the research proposition examination wherein the student will formally present and defend the research and proposed studies outlined in the Written Proposal.

### Research Proposition chair

The chair is appointed by the *BIOM 296 Course Chair - Dr. Yaksh*. **Responsibilities:** Oversees the functioning of the research prop committee. Ascertains that the student meets all the specified deadlines. It is anticipated that the research prop chair will meet with the student (in person or video) at least twice during the course prior to the research prop oral examination.

### Research Proposition committee members

These two committee members are selected by the Thesis advisor and student. These two members must have an appointment at UCSD (tenure track, adjunct, in residence, research series). Exceptions for appointment of committee members who may not have a UCSD appointment will be made on a case-by-case basis by Dr. Yaksh. **Responsibilities:** The committee's responsibility is, in association with the thesis advisor, to provide guidance to the student and input into the research proposition

## The Written Proposal

The Thesis advisor should direct the student to the description of the sections of an NIH RO1 submission and mentor the student in grant writing. The written proposal will take the format of a predoctoral NIH Fellowship, as follows (all lengths refer to single-spaced typing, 0.5" all around margins, 11-point, Arial type):

**Title:** No more than 80 characters, space included

**Abstract:** No more than 30 lines

**Narrative:** No more than 3 sentences, explaining in lay terms, the relevance of the proposed research to public health.

**Specific Aims:** 1 page, with clear statement of rationale and hypothesis and no more than three specific aims

**Research Strategy:** total limit of 6 pages. All figures should be embedded in these 6 pages.

1. *Background and Significance*
2. *Preliminary Studies* – student may include his/her own results, the lab's prior studies, and other published results, if relevant. Graphics – Use Figures to summarize the current knowledge, the research ideas, to show data and to depict experimental strategies.

3. *Research Design and Methods*, including discussions of anticipated outcomes and alternatives.

**Literature Cited:** (*No page limit*) Between 30-60 citations that support the rationale and the feasibility of the proposed research.

### **Detailed Timeline for Fall 2025 Research Propositions**

- 1) **By the end of the first Spring quarter**, each BMS student must identify a thesis advisor.
- 2) On **Monday, June 9th**, there will be a meeting of the students with the BIOM 296 Chair (Dr. Yaksh). Here he will meet with the students to go over the timeline and expectations for the entire process (as detailed below).
- 3) **During the Summer, several things must be accomplished**
  - a) The student and the Thesis advisor will work together to select an area for the student's thesis work, and, under the direction of the advisor, the student will begin to read relevant papers and to develop familiarity with relevant experimental systems and procedures at the bench. The advisor can make the scientific portions of successfully funded grants available to the student and encourage independent development of some of the themes in those grants.
  - b) Each student will begin to create an abstract of the proposed research project, centered on a testable hypothesis and a feasible number of specific aims (typically no more than three in total).
  - c) The advisor and the student must also discuss possible membership of the student's *Research Proposition Committee*, consisting of the Research Proposition Chair and two other eligible faculty members (see above) with expertise in the specific areas of the proposed research. This committee should be viewed as *potentially* part of the student's future Thesis Committee (although membership can be changed subsequently).
- 4) During the **week of July 28th**, there will be a one hour orientation session for all thesis advisors to review their responsibilities.
- 5) On **Monday, August 11th**, students and the BIOM 296 Chair (Dr. Yaksh) will meet to review student progress and the timeline to completion of this qualifying examination. Students should have a draft *Title, Abstract and Specific Aims* sections of the proposal.
- 6) On **Tuesday, September 9th** the tentative Title, Abstract and Specific Aims will be due, electronically, in the program office. The submission should be in the form of a pdf file, sent to pluetmer@health.ucsd.edu. **This is a hard deadline.**

The pdf file must include:

- a. a cover page with a membership list of the student's Research Proposition Committee (two members that are not the Thesis Advisor)
- b. signature of the student's Thesis advisor to signify approval of the submitted Title, Abstract, and Specific Aims

7) By **Wednesday, September 17th**, the *BIOM 296 Course Chair* (Dr. Yaksh) will assign a *Research Proposition Chair* (not one of the two faculty selected by the student) to serve as the chair of the student's *Research Proposition Committee*. This chair, as a member of the BMS program provides assurance of uniform standards in the proceedings. As noted above, this committee consists of the Research Proposition Chair and two other faculty members (the Thesis Advisor is not a member of this committee.)

9) During the **week of September 29<sup>th</sup>** there will be a one-hour orientation session for all Research Prop Committee Chairs to review their responsibilities.

8) By **Thursday, October 9th**, the *Research Proposition Committee Chair* approves the *Title, Abstract and Specific Aims*. This emphasizes that the student must engage the *Research Proposition Committee Chair* in the design and writing of the proposal so that this person can sign off by October 9th. **This is a hard deadline.**

10) During the **balance of October**, the student and Thesis advisor work together in the development of the proposal. The student should also work with the *Research Proposition Committee* members to complete writing the proposal to the satisfaction of **all** members. This is to be a learning experience, with ample give and take and consultation by the student with all members of the *Research Proposition Committee*.

11) By **Thursday, November 6th**, the written proposal must meet the approval of all members of the *Research Proposition Committee* as evidenced by their signing off on the document. **This written proposal must be approved by all members of the committee BEFORE THE ORAL EXAM.** The indication of this signing off must be communicated by the *Research Proposition Committee chair* to Pat Luetmer (pluetmer@health.ucsd.edu). **No sign off....no exam!!! This is a hard deadline.**

12) **No later than November 26th**, each student will have presented and defended the proposal orally before the *Research Proposition Committee*, an exercise in which the Thesis advisor **does not participate**. **Please note: The Final Written proposal must be signed off by all members of the committee BEFORE the Oral Exam.** The examination of the student will be centered on the scientific proposal but will take on the character of a General or Qualifying Exam, covering relevant materials from first year courses and additional materials judged to be essential to the proposal. The student is responsible for arranging a place and time suitable to all Committee members to conduct the oral exam. **This is a hard deadline.**



The *Chair of the Research Proposition Committee* will chair the oral presentation, and the student's Thesis Advisor will not attend the presentation, to allow assessment of the student's independent performance.

The exam should be scheduled for 90 minutes. The student should prepare an oral presentation with supporting slides of the proposed research (not exceeding ~40 minutes). Questions posed by the Committee will cover the area of the student's presentation as well as fundamental principles of any and all disciplines of biomedical sciences, especially as they relate to the proposition.

At the end of the oral presentation and examination, the committee will deliberate under direction of the *Chair of the Research Proposition Committee* and deliver critiques of both the written proposal and oral presentation and defense. The results will be conveyed to Program office in writing and to the student immediately after the research prop defense. Comments marked "confidential" will not be conveyed to the student.

Satisfactory performance will permit the student to proceed with full time research. Unsatisfactory performance may necessitate re-writing or re-presenting the oral defense or result in a recommendation that the student withdraw from the program.

No student will pass the Qualifying Exam (written and oral portions) without the concurrence of the *Chair of the Research Proposition Committee*. The BIOM 296 Course Chair (Dr. Yaksh) shall be immediately notified of failures or any problems that are noted.

### **Administration**

*Enforcement: Exceptions* – BMS students are expected to complete the entire Research proposition process by Fall quarter of the second academic year. There may be circumstances requiring exceptions: e.g., illness, or academic difficulties in other areas. Exceptions will be considered on a case-by-case basis by the relevant program officers including the *BIOM 296 Chair*, and the *Research Proposition Committee*. *Barring extenuating circumstances, the extension will not be granted beyond the second Winter quarter.* Students will be denied further registration in the Program if the Research Proposition process is not successfully completed before the end of Winter Quarter of their second year.

### **Grade and Credit**

After the oral examination, an S/U grade recommendation will be made by the *Research Proposition Committee* and forwarded to the Program Office, to the attention of the BIOM 296 Course Chair, who will assign the final grade. An S will earn students 4 units of credit in the quarter in which the Research Proposition Qualifying Exam (BIOM 296) is completed. A student who fails to satisfactorily complete all elements of the Research Proposition within the prescribed time will earn a U grade and will be referred to the

Academic Student Standing, Promotions and Advisory Committee (A-SPAC) of the Biomedical Sciences Graduate Program for appropriate action. Satisfactory completion of the Research Proposition is a prerequisite to beginning the Thesis project.

### **Research Proposition Committee, Fall 2025**

The Research Proposition examination is administered by the *Research Proposition Committee Chair*, appointed by Tony Yaksh ([tyaksh@ucsd.edu](mailto:tyaksh@ucsd.edu); 619-543-3597) and the *Research Proposition Committee* (constituted of faculty members from the Biomedical Sciences Graduate Program.)

## **6.C.2. ADVANCEMENT TO CANDIDACY**

### **Selection of a Thesis Committee**

GEPA has specific and strict guidelines on the composition of a Thesis Committee, as outlined here:

<https://grad.ucsd.edu/academics/progress-to-degree/committees.html>

Briefly, the Thesis Committee should include a minimum of 4 members with UC San Diego faculty appointments. The thesis committee chair is the student's thesis advisor. At least one member must have a primary appointment in a different department than the thesis committee chair's primary department (Doctoral Committee Co-Chairs from different departments or programs satisfy this requirement; note that, even with evenly split appointments, faculty are primary in one department). At least 2 members must be from the student's home department or program. At least 1 member must be tenured or emeritus.

Additional committee members beyond the required four members can be requested to serve, including from another UC campus, non-UC academic institutions and industry. Appointment of such external members who will participate in Doctoral Committee decisions must be justified with a written explanation at the time of requesting committee constitution and must be approved by GEPA. Willingness of external members to serve on the committee must be verified prior to nomination and efforts should be made to maintain continuity of service on the committee for the duration of candidacy.

**To select a thesis committee,** Once the student and thesis advisor have a proposed committee, the student should submit the list of names to Leanne Nordeman ([lnordeman@health.ucsd.edu](mailto:lnordeman@health.ucsd.edu)) for verification that the proposed committee meets UCSD guidelines. Once the names have been approved by BMS, the student and their thesis advisor should contact potential members directly to secure their participation. Once all members have agreed to serve, the student should inform Leanne who will submit the thesis committee for approval by the Program Chair and the Dean of Graduate Education. The official doctoral committee is then appointed by GEPA.

**A list of the Thesis Committee Members must be submitted for approval by the end of the Spring quarter of the second year.** The intent of establishing the Thesis Committee early in the student's program and well before the Advancement to Candidacy is that its members may serve as informed experts and advisors to the student on various aspects of the thesis research.

The Thesis Committee serves an advisory role in the conduct of the thesis research. The full committee, assembled according to GEPA rules, serves as the student's Advancement to Candidacy Examination Committee.

Following successful Advancement to Candidacy, the Thesis Committee must meet as a group with the student at least annually to evaluate the student's research progress. Students should prepare and circulate to committee members a progress report in advance of each committee meeting.

### **Advancement to Candidacy**

The goal of the Advancement meeting is for the student to apprise the Thesis Committee in a clear and comprehensive manner of their thesis research, so that the committee members can evaluate it and provide advice and direction to the student. **Advancement should be completed by the end of the Spring quarter of the third year.**

The Thesis Committee should ensure that the following issues are addressed during Advancement:

- a) The research program focuses on a significant problem
- b) Methods are appropriate and rigorous
- c) The research is thoroughly and carefully designed
- d) Pitfalls and alternatives have been considered
- e) The project can be accomplished in a reasonable period of time
- f) Completion of the proposed research will provide appropriate training to support granting the PhD degree
- g) Mentoring is appropriate
- h) Requirements are applied fairly and uniformly to assure high quality of BMS program graduates.

To facilitate the Advancement to Candidacy evaluation by the thesis committee, the student must prepare and submit to the committee a written description of proposed thesis project. This written document must be in the format below: failure to meet the format requirements will prevent successful Advancement. The written document must be circulated to the committee **at least one week** before the Advancement meeting.

### **Format of Proposal for Advancement to Candidacy**

There is no formal requirement for the format of the written proposal. Students are strongly advised to follow the general structure described below, and to write concisely

(ideally, the length of the proposal should not exceed 8 single-spaced pages, not including Literature Cited). Students are strongly encouraged to solicit feedback from their thesis advisor and co-workers/peers to ensure concision and clarity. This is the normal grant-writing process and students are advised to start work on the proposal early (at least 2 months prior to their advancement date).

**Specific Aims:** short paragraph delineating the goal(s) of the proposal.

**Background & Significance:** Outline the necessary background to understand the proposal and justify the significance of the work.

**Preliminary Results:** Describe progress to date.

**Research Design and Methods:** Describe the proposed work that will make up the thesis project.

### **Literature Cited**

During the oral presentation at the Advancement meeting, the student should present the overall plan for the research, but should also summarize work conducted, provide evidence of feasibility, and discuss with the Committee the practicality and appropriateness of the methods. The student should also solicit the Committee's input on the best strategy with respect to pursuit of their thesis work. The Committee will query the student's familiarity with the literature related to the topic of investigation, as well as assess the student's critical thinking and ability to develop experimental strategies for addressing specific questions. The decision to advance a student is entirely in the hands of the Thesis Committee and is based on their evaluation of the written proposal and the performance of the student at the oral presentation.

The student will be asked to leave the room prior to the commencement of the oral presentation. During this time the committee will have a discussion with the Thesis Advisor to evaluate overall student progress, research strengths and weaknesses, and any potential concerns. The Thesis Advisor will similarly be asked to leave the room to allow time for the student to discuss any issues regarding the Thesis Advisor with committee members. If the student articulates substantial concerns regarding the Thesis Advisor that cannot be adequately addressed in the context of the committee meeting, an agreed upon member of the committee should contact the Chair or Vice Chair of the program to discuss the issues and establish an action plan.

Following the student's presentation, the student may again be asked to leave the room while the committee discusses the quality of the student's oral and written presentation and the overall research progress. Once the student rejoins the meeting, the Thesis Advisor will summarize the discussion and provide feedback to the student. Other committee members are encouraged to provide feedback as well.

Successful Advancement to Candidacy requires approval from all thesis committee members and the Dean of Graduate Education, acknowledged by their signing the "Report of the Advancement to Candidacy" form after the oral presentation and

discussion (distributed electronically the day of the Advancement meeting). Advancement to candidacy requires the student to pay a candidacy fee that will post to their TritonLink billing statement.

*To reiterate program policy: Students must Advance to Candidacy by the Spring quarter of the third year and must have an annual meeting with their thesis committee after the Advancement to Candidacy. The program takes these annual committee meetings very seriously. They are always in the student's best interests. Students who do NOT have an annual Committee meeting in the prior academic year will not be permitted to enroll in the following Winter quarter.*

## **6.D. PRESENTATION AND DEFENSE OF THE DISSERTATION**

The presentation and defense of the dissertation is divided into several steps:

1. When the student and advisor agree that the student's research has or soon will reach a satisfactory endpoint (normally during the student's fifth year in the program), the student convenes their Thesis Committee for a pre-defense meeting. At this meeting, the student provides the committee an overview of their work and an outline of the proposed thesis. All committee members must approve that the body of work accomplished is sufficient for a thesis and that the student can proceed to writing their dissertation.

*NOTE:* While there is no publication requirement for graduation, a typical minimum standard for completion of the PhD includes one first author or co-first author primary research publication, which is either (1) published in a peer-reviewed journal, or (2) submitted to a journal for peer review and posted on a preprint server such as *bioRxiv*.

2. Once having obtained the approval to proceed, the student prepares the written dissertation. This document should present the individual student's research and should be organized into a series of chapters including:

**Introduction** (background and a clear statement of the problem being investigated, or hypotheses being tested). This should be a stand-alone chapter that serves as a review of the field, puts the research problem in the context of the field, and clearly summarizes the hypotheses being tested.

**Results.** This section can comprise one or more chapters, usually describing published work (use of text of published or submitted papers is acceptable, but mere insertion of reprints is not acceptable) and unpublished information (organized by **Methods**, **Results**, and **Discussion** in light of the problem or hypotheses stated in Chapter 1). If data from published or submitted papers is presented, the contribution of the student in multi-author papers must be clearly stated. If a figure is included that presents an experiment in which someone else helped or performed the experiment, this must be explicitly stated.

**Conclusions** (discussion of the findings, larger implications of the work, and suggestions for future experiments). This should be a stand-alone chapter that puts the findings of the research in the context of the field and describes how the field has been advanced.

## References

**Length and Formatting:** While there are no strict guidelines, a typical thesis is 100-200 pages. Students should also consult their Thesis Committee members for input. Typically, preparation of the written thesis requires 2-3 months, depending on whether parts of the thesis have already been published. To save time, students should check with GEPA for the University guidelines on the format of the written thesis. The final version must conform to procedures outlined in the University publication- Instructions for the Preparation and Submission of Doctoral and Masters' Theses (available on the GEPA website: (<https://grad.ucsd.edu/files/academics/FormattingManual2024-25updated1.14.25.pdf>))

GEPA has very specific requirements. Check the rules carefully and do so in advance of writing.

3. When the student and the Thesis Advisor agree that the written dissertation is nearing final form, and upon approval of all members of the thesis committee, the student schedules a public research seminar immediately followed by a closed thesis defense. The Academic Senate requires that the student must submit a draft of the written dissertation to each member of the doctoral committee at least four weeks before the final examination. If recommended by the thesis committee, the closed defense may be held prior to the public presentation. Several months' notice may be needed to find a date compatible with all members of the committee. Note that the public defense must be advertised to the university community in advance of the meeting. Contact the BMS Office and provide the defense date, time, location, and dissertation title and they BMS will advertise your defense. Following a successful examination and approval of the thesis, the committee signs the thesis and the Final Report form which will be sent to the committee by Pat Luetmer via DocuSign.

*NOTE: In cases where the thesis committee (including the student's thesis advisor) does not unanimously support a student's graduation, UCSD Academic Senate Regulation 715.E shall apply, which reads in part:*

**In cases where the Doctoral Committee fails to achieve unanimity in approving the candidate for the Ph.D. degree, the Dean of the Graduate Division [GEPA] shall be called upon to review the case and report their findings to the Graduate Council, which shall determine appropriate action.**

*These cases are rare, and the student is encouraged to contact BMS Staff and the BMS Program Director if they anticipate such an issue.*

4. A final exit meeting with GEPA is required for the degree. The student submits the approved thesis with the Final Report, and Degree and Diploma application to GEPA. Upon approval by the Dean of GEPA, the student files the dissertation with the University Archivist in the Mandeville Special Collections Library of Geisel Library, who accepts it on

behalf of the Graduate Council, a subcommittee of the Academic Senate. Acceptance of the dissertation by the University Archivist and filing the Final Report with GEPA represent the final steps in the completion of all requirements for the PhD in Biomedical Sciences.

## 6.F. SUMMARY OF TIMELINES:

### RESEARCH PROPOSITION (Spring of Year 1 through Fall of Year 2)

| Task   | Time                    | Responsible parties  |
|--|-------------------------|--|
| Research Proposition Meetings, Abstract, Committee Assignment, Oral Exam | Summer and Fall quarter | Students and BIOM 296 Chair – Research Prop Chair, Thesis Advisor, and Research Prop Committee |

### ADVANCEMENT TO CANDIDACY (Spring of Year 2 to Spring of Year 3)

| Task  | Time   | Responsible parties          |
|---|--|------------------------------|
| Selection of Thesis Committee complying with GEPA guidelines. Submit proposed Committee to Leanne | Spring quarter of student's second year              | Student and Thesis Advisor   |
| Submission of a written proposal to the Thesis Committee  | One week before the Advancement to Candidacy meeting | Student and Thesis Committee |
| Advancement to Candidacy. Inform Pat Luetmer of the date  | Spring quarter of student's third year.              | Student and Thesis Committee |

### THESIS DEFENSE (Spring of Year 5 to Fall of Year 6)

| Task                         | Time  | Responsible parties          |
|------------------------------|---|------------------------------|
| Pre-defense meeting          | BMS recommendation- 6 months prior to writing the Thesis  | Student and Thesis Committee |
| Submission of written Thesis | BMS recommendation- 2 weeks prior to public defense of Thesis<br><br>Academic Senate recommendation- four weeks prior to public defense of Thesis | Student                      |
| Thesis defense               | BMS recommendation: no later than the end of the fifth spring quarter   | Student and Thesis Committee |



|                               |  |         |
|-------------------------------|--|---------|
|                               | (Note: GEPA deadline is no later than the end of the seventh Spring quarter) |         |
| Submission of Approved Thesis | (Necessary for Degree)   | Student |

## **7. REPORTS AND EVALUATIONS**

### **7.A. REVIEW OF FIRST-YEAR PERFORMANCE**

The Academic Student Standing, Promotions and Advisory Committee (A-SPAC) meets periodically to review the performance of each first-year student in laboratory rotations, formal class work and in meeting the degree requirements. At the end of Spring Quarter of the first year, the student's A-SPAC advisor evaluates the student's performance with a written evaluation submitted to the Program office. Where necessary, the A-SPAC advisor consults directly with the student. The importance of this evaluation is emphasized by the fact that it forms the basis of a recommendation to the BMS Program Director concerning whether the student should continue in the degree program at the end of the first year.

### **7.B. ANNUAL REVIEW OF PERFORMANCE BEYOND FIRST YEAR**

During the Fall Quarter of the Second Year, the performance of the student on the Research Proposition Exam will be evaluated by the members of the Research Proposition Committee, and the results will be conveyed in writing to the student, the Thesis Advisor and the Program Office. At the end of the Spring Quarter of the Second Year, the Thesis Advisor will submit a written evaluation of the student's progress. In all subsequent years, the annual review of the student's performance should coincide with an annual thesis committee meeting to be held in the Spring Quarter. This evaluation should indicate the degree to which students are, overall, progressing satisfactorily in their thesis work, document their strengths and weaknesses and provide guidance for future development, these evaluations should contain cogent and clear advice to students. This evaluation is made available to students to read and respond as desired. A copy of this evaluation is sent to GEPA to be made part of the students' permanent files. Students must participate in this annual evaluation by discussing their progress with advisors and thesis committee members and by adding their written comments to the evaluation. When completed, the evaluation must be approved by the BMS Program Director.

### **7.C. ANNUAL PHD STUDENT COMMITTEE MEETING**

The goal of the annual committee meeting is for students to receive substantive and actionable feedback from committee members on student progress toward doctoral program goals and milestones. The committee should be viewed as a resource to help the student navigate the path to graduation. These annual meetings are especially important if research progress is slow or if there are concerns about the academic performance of the student. Similarly, these committee meetings are an important opportunity for the student to seek guidance regarding mentorship concerns with the thesis advisor. *The Biomedical Sciences Graduate program expects faculty serving on thesis committees to take this instructional responsibility seriously and to actively participate in thesis committee*

meetings. These annual meetings should be 1.5 hours in length to provide time for active discussion and feedback and should take place in-person.

During this meeting the student can be asked to leave the room prior to the commencement of the presentation. During this time the committee will have a discussion with the Thesis Advisor to evaluate overall student progress, research strengths and weaknesses, and any potential concerns. The Thesis Advisor will similarly be asked to leave the room to allow time for the student to discuss any issues regarding the Thesis Advisor with committee members. If the student articulates substantial concerns regarding the Thesis Advisor that cannot be adequately addressed in the context of the committee meeting, an agreed upon member of the committee should contact the Chair or Vice Chair of the program to discuss the issues and establish an action plan.

#### **7.D. SUMMARY OF ANNUAL REVIEW TIMELINE**

| <b>Year</b>            | <b>Deadline of Review</b> | <b>Responsible party</b> |
|------------------------|---------------------------|--------------------------|
| Year 1                 | End of Spring Quarter     | A-SPAC advisor           |
| Year 2                 | End of Spring Quarter     | Thesis Advisor           |
| Year 3                 | End of Spring Quarter     | Thesis Committee         |
| Year 4                 | End of Spring Quarter     | Thesis Committee         |
| Year 5                 | End of Spring Quarter     | Thesis Committee         |
| Year 6 (if applicable) | End of Spring Quarter     | Thesis Committee         |

**NOTE:** *The Division of Graduate Education and Postdoctoral Affairs must have on file a satisfactory Spring Evaluation before financial support for the following Fall Quarter will be approved.*

#### **7.E. INDIVIDUAL DEVELOPMENT PLAN (IDP)**

In addition to preparing for the committee meeting portion of the Annual Evaluation, all students in the program (2nd year and beyond) will work with their thesis advisor to develop an Individual Development Plan (IDP). These are meant to help define career goals and identify skills that need to be developed to help a student be successful in graduate school and beyond. Several templates are available:

- UCSD IDP form (<https://postdoc.ucsd.edu/training/idp.html>)
- AAAS & Science IDP (<http://myidp.sciencecareers.org/>)
- UCSD Biological Sciences form ([http://biology.ucsd.edu/files/education/grad/GSIS\\_Forms/Grad\\_IDP.pdf](http://biology.ucsd.edu/files/education/grad/GSIS_Forms/Grad_IDP.pdf))

An IDP is required for all trainees supported by US federal funds, which effectively means all students. Students are not required to share the IDP with the committee, but the Thesis Advisor will need to verify that the IDP is complete on the online annual evaluation form.



## 8. STUDENT AWARDS

Students are encouraged to apply for external competitive fellowships. Students who obtain such awards will receive a one-time \$3,500 bonus provided by BMS. To qualify for the bonus, fellowships must support the student's stipend and/or tuition, and the value must be equal or greater than an NIH F31 fellowship. *Note:* this bonus does not apply to internal competitive fellowships such as NIH T32 training grants.

In addition, the following awards recognize excellence in the performance of students during their PhD training and are overseen by the BMS Awards Committee:

### **BMS OUTSTANDING DISSERTATION AWARD**

The Outstanding Dissertation Award recognizes and rewards a graduate student whose thesis has been identified by the BMS Program Awards Committee, following nomination by the Thesis Advisor and one committee member, as outstanding among all those submitted during the previous academic year (July 1-June 30).

**Award:** The recipient will receive a cash award of \$1,000 and be invited to speak at the annual BMS retreat.

**Eligibility:** To be eligible for the award, the nominated student must have defended their thesis during the period July 1, 2023– June 30, 2024.

**Nomination Procedure:** The nomination should include letters from the thesis advisor and one committee member. The letters should comment on: (1) Research achievements of the student that comprise their thesis; (2) Scholarship demonstrated in the written thesis.

### **UCSD AWARDS**

BMS students are competitive for a wide variety of awards administered by UC San Diego, many of which provide significant financial support. These are compiled by GEPA and are listed here:

<https://collab.ucsd.edu/display/GDCP/Graduate+Student+Fellowships>

Typically, BMS Staff will send an email announcement for each competition to BMS faculty, to solicit nominations. For those awards that limit nominations from each graduate program, thesis advisors should send their nomination materials to BMS Staff for distribution to the Awards Committee.

### **NATIONAL/INTERNATIONAL AWARDS**

BMS students and their thesis advisors are encouraged to compete for national or international awards, as appropriate for their discipline. In cases where a graduate program nomination is required, students and thesis advisors should contact BMS staff to obtain a letter of nomination.

## 9. POLICIES ON STUDENT SUPPORT

During their first academic year (for the Fall 2024 entering class: September 1, 2024, through June 30, 2025), BMS PhD students performing research rotations are considered scholars and are supported entirely on BMS program funds. MSTP/PharmD students (who have completed rotations prior to admission) and direct-admit PhD students are appointed as Graduate Student Researchers (GSRs) immediately upon joining the program.

Upon joining a thesis laboratory (for the Fall 2024 entering class: July 1, 2025), BMS students are appointed as GSRs. Depending on the source of their financial support, appointments may be made as "GSR" (research grant awarded to the thesis advisor's laboratory), "GSR Trainee" (training grant awarded to the student), or "GSR Fellow" (fellowship awarded to the student). For BMS students whose first GSR appointment occurred on or after January 1, 2023, the appointment level is 50% of GSR Step 4.

The thesis advisor is responsible for the student's support beginning July 1 following the student's first academic year. Students should discuss their intentions with potential Thesis Advisors in advance and during the rotation periods to avoid funding problems that would prohibit students from joining the laboratories of interest.

Students who are serving as teaching assistants for UCSD courses will be appointed as Academic Student Employees (ASEs) and will be paid by the appointing department according to standard ASE support levels.

### Policy on outside employment

Pursuing a PhD thesis is a demanding undertaking, and as such the BMS program generally expects that students will dedicate full-time effort to their combined research and academic activities. BMS students are expected to spend **core working hours** on research and related academic pursuits (generally 9 AM to 5 PM Monday through Friday; this may vary by lab). **Apart from this requirement, BMS has no official stance on unrelated outside activities or employment, as long as these activities do not infringe on their research and academic responsibilities.**

### Policy on internships and consulting agreements

In certain cases, students may have the opportunity to pursue outside employment related to their scientific career advancement on either a full-time, short-term basis (e.g., an internship) or a part-time basis (e.g., consulting). In these cases, the following policies shall apply:

1. Students must inform and gain the approval of their PhD thesis advisor and the BMS Program Director prior to agreeing to any outside scientific employment (i.e., internships or consulting agreements). The student and their thesis advisor must carefully consider

how the outside employment will affect the student's progress toward their PhD, and weigh those drawbacks against the benefits of pursuing this employment.

Before committing to the outside employment, students must also notify the Assistant Dean of Graduate Student Affairs in the Division of Graduate Education and Postdoctoral Affairs (GEPA) of their plans and also contact the UCSD Conflict of Interest (COI) director: [info-COI@ucsd.edu](mailto:info-COI@ucsd.edu) to discuss possible conflicts and ancillary policies around outside employment. Students should also consult the UCSD COI web site for additional information: <https://blink.ucsd.edu/sponsor/coi/researchers/graduate.html>.

2. For full-time, short-term outside employment such as an internship (generally not exceeding one academic quarter or three calendar months), students may be compensated by the outside employer and BMS will place no restrictions on the level of this compensation. If the outside compensation is below the program stipend level, the thesis advisor will supplement the outside compensation up to the appropriate program stipend level. If the outside employment period is during the academic year, the student may be required to take a leave of absence from the BMS program (consult with the BMS office for details).

3. For part-time outside employment such as a consulting relationship, students are limited to 10% effort (4 hours/week or 200 hours/year). BMS will place no restrictions on the level of compensation provided to the student by the outside employer for this work. No University time or resources should be utilized for your outside activities (i.e., no conflict of commitment). Since this work is not expected to impact the student's academic and research activities, the student will continue to be paid at the standard BMS stipend level during the period of part-time outside employment.

For any outside scientific employment, the student and their thesis advisor should consult with the UCSD Conflict of Interest (COI) Office, which is housed within the Research Compliance and Integrity (RCI) Office, to discuss and preemptively avoid any conflicts of interest or conflicts of commitment. **According to UCSD GEPA policy, a faculty member cannot serve as the primary thesis advisor for a student who is employed by a private entity in which the faculty member holds a financial stake.** If the student is considering employment by a company in which their thesis advisor has a financial stake, the student and their advisor must identify another faculty member to serve as Chair of the student's thesis committee. The research advisor may continue to serve as Co-Chair of the thesis committee.

## **10. TERMINAL MASTER'S DEGREE**

The BMS program offers a Terminal Master's degree to students who do not complete the PhD requirements but who satisfactorily complete the core and advanced course work requirements, three laboratory rotations, the Research Proposition examination, and have a GPA of at least 3.0 (GEPA requirement). Award of the degree requires approval of the student's thesis advisor and the BMS Program Director.

## **11. ACADEMIC LEAVES OF ABSENCE**

A student is expected to be in continuous residence until the thesis is awarded. A student may request a leave of absence for a maximum of one year when conditions established by GEPA are met. If the student does not return from leave by the GEPA deadline date, they must reapply for admission. Extension of a leave of absence beyond one year will be made only under exceptional circumstances. Leaves of absence for childbearing and parenting (primary responsibility for care of children under 5 years of age) will be granted for up to three quarters. Approved leaves for these purposes will not count toward the one year (3-quarter) leave limit applicable to all graduate students. Professional obligations (e.g., post-graduate training or service by physicians) will not be considered as reasons for extension of a leave of absence. Students who are considering a leave are encouraged to consult with the BMS staff to discuss requirements and options.



## 12. SUPPORT SERVICES

### **COVID-19 Campus Resources and Guidelines:**

<https://blink.ucsd.edu/safety/resources/public-health/covid-19/index.html>

### **Division of Graduate Education and Postdoctoral Affairs (GEPA):** <http://grad.ucsd.edu>

*Student Services Center, 4th floor*

GEPA is the central resource for all matters related to graduate education at UC San Diego. They provide a wide range of services to prospective and existing UCSD graduate students and campus departments on all graduate education matters including outreach and recruitment; graduate admissions; enhancing the quality of graduate student life; student financial support, fellowships, and traineeships; graduate student advising and advocacy; retention programs; development and oversight of graduate degree programs; interpretation and application of policies and common standards of high quality in graduate programs across campus; collaboration with Graduate Council and Graduate Student Association; administrative oversight of the Teaching and Learning Commons; and coordination of graduate commencement activities.

### **Grad Life:** <https://gradlife.ucsd.edu/about/index.html>

Grad Life is a resource hub for all UC San Diego graduate students. The Grad Life website and social media accounts are managed by the Grad Life Intern, a current graduate student working out of GEPA. The Grad Life Intern works in collaboration with campus organizations, faculty, staff, and students to bring essential programming, resources, and communication to UC San Diego graduate students in an effort to improve the overall campus environment.

### **Graduate Student Association (GSA):** <http://gsa.ucsd.edu/>

*4th Floor of Price Center East, Suite 4630*

The GSA is the official representative body of graduate and professional student at UCSD, which exists to advocate for the rights and interests of our diverse community, to provide for the enjoyment of social, cultural, and service-oriented events, and for the betterment of academic and non-academic life of all graduate and professional students at UC San Diego.

### **Student Health Services Center:** <http://studenthealth.ucsd.edu/>

*Library Walk West of the Price Center*

Student Health Services provides quality primary medical care, including urgent care and support services such as laboratory, pharmacy, and x-ray. Comprehensive primary health care is provided without charge during the academic year and summer for all full time registered graduate students. Student Health Services is fully accredited by AAAHC. Students are encouraged to seek advice on any health problem. Professional and confidential attention is assured. Most services require an appointment. There are same-day appointments available for urgent needs. Advanced appointments are available for routine care. Consult the website for current hours.

**Counseling & Psychological Services (CAPS):** <http://caps.ucsd.edu/grad.html>

*Galbraith Hall 190*

Central Office: (858) 534-3755

After-Hours Crisis Counseling (24 Hours): (858) 534-3755

Counseling & Psychological Services provides the following services to registered undergraduate, graduate and professional school students:

High quality, culturally-sensitive, and confidential counseling services, including individual, couples, family and group counseling, crisis/urgent care interventions, and referral services FREE of charge.

Psychiatric services and consultation.

Psycho-educational workshops and drop-in forums grounded on the latest science of optimal well-being and peak performance to support students in their life and leadership skills acquisition.

A Wellness Peer Education Program, nationally recognized as a model of best practice for empowering students to develop leadership and helping skills.

Campus mental health and prevention programming focused on stigma-discrimination reduction and community-building.

Student mentoring and advocacy.

Outreach and consultation services to faculty, staff and University administrators.

An APPIIC-approved post-doctoral fellowship training program.

During the summer, students who were enrolled the previous Spring quarter and are intending to return in the Fall quarter are eligible for CAPS services.

**Health Promotion Services**

Offers a variety of services and resources related to health and wellbeing (e.g., stress reduction, time management, health coaching, etc.). More information can be found here: <https://healthpromotion.ucsd.edu>

## **Triton2Triton**

Triton2Triton <https://vcsa.ucsd.edu/case-management/online-peer-support/triton2triton.html> is a supportive, online connection space where UC San Diego students can connect with trained peers in real time who understand what they're going through and can offer resources. T2T is available virtually (from any device) for navigational needs and emotional support M-F 10AM-4PM.

## **Togetherall**

Togetherall <https://vcsa.ucsd.edu/case-management/online-peer-support/togetherall.html> is a safe, online mental health community where UC San Diego students can anonymously connect with others, 24/7.

## **Triton CORE**

Crisis response team of mental health professionals that provides mobile crisis response, wellness checks, and telehealth assessments for students facing mental health challenges, substance use related crises, and other forms of distress

- **Contact UCSD Police Department Dispatch at 858-534-4357 and request the Triton CORE team**
- **Triton CORE team is currently available between 1:30pm–10:00pm Mondays, Tuesdays, and Wednesdays**
- <https://tritoncore.ucsd.edu>

**Office for Student with Disabilities (OSD):** <https://students.ucsd.edu/well-being/disability-services/index.html>

*University Center 202*

The Office for Students with Disabilities (OSD) at UC San Diego works with undergraduate, graduate, and professional school students with documented disabilities, reviewing documentation and, through an interactive process with the student, determining reasonable accommodations. Disabilities can occur in the following areas: psychological, psychiatric, learning, attention, chronic health, physical, vision, hearing, acquired brain injuries, and autism, and may occur at any time during a student's college career. We encourage you to contact the OSD as soon as you become aware of a condition that is disabling so that we can work with you.

**Sexual Assault Resource Center (SARC):** <http://care.ucsd.edu>

*Student Services Center, 5th floor, Suite 500*

CARE at the Sexual Assault Resource Center is UC San Diego's confidential advocacy and education office for sexual violence and gender-based violence (dating violence, domestic violence, stalking). CARE provides violence prevention education for the entire UCSD campus and offers free and confidential services for students, staff and faculty impacted by sexual assault, relationship violence and stalking.

**Office of the Ombuds:** <http://www.ombuds.ucsd.edu/>

The UC San Diego Office of the Ombuds provides confidential, neutral, and informal dispute resolution services for the UC San Diego community. The office is available to assist faculty, staff, students, non-Senate academics, postdoctoral trainees, and employees of UC San Diego Health System (UC San Diego Medical Center and related facilities) who seek guidance with the resolution of academic or administrative issues and disputes. Its services supplement, but do not replace, other administrative processes at the University. The office works to facilitate communication and assist parties in reaching mutually acceptable agreements in order to find fair and equitable resolutions to concerns that arise at the university. The ombuds office also reports general trends of issues and provides feedback throughout the organization, and advocates systems change when appropriate without disclosing confidential communications.

The ombuds office functions independently with respect to case handling and issue management and reports to Ethics and Compliance in the Chancellor's office for administrative and budgetary purposes but not regarding the substance of matters discussed in the office. Its services supplement other administrative processes and formal grievance procedures available at the University. When providing services, the ombuds staff adheres to The International Ombudsman Association Code of Ethics and Standards of Practice which may be found on our website.

**Office for the Prevention of Harassment and Discrimination:** <https://ophd.ucsd.edu/>

OPHD's mission is to educate the UC San Diego community about issues of bias, harassment and discrimination and to assist with the prevention and resolution of these issues in a fair and responsible manner.

**Workplace Conduct and Practices and Abusive Conduct in the Workplace Policies**

<https://blink.ucsd.edu/HR/policies/conduct/index.html>

## 13. GUIDELINES FOR BMS MD/PHD CANDIDATES

### 13.A. ADMISSIONS REQUIREMENTS

MD/ PhD applicants must meet all requirements for graduate admission to the Biomedical Sciences Program. Copies of Academic Records may be submitted by the School of Medicine. Students are evaluated during their second year of study for matriculation into the PhD program during their third year.

### 13.B. COURSE WORK AND ROTATIONS

MD/PhD students are required to take the Fall seminar course (BIOM 201), Ethics in Scientific Research (BIOM 219) and Statistical Inference in the Medical Sciences (BIOM 285) in the Spring quarter. MD/PhD students must also complete all Biomedical Sciences advanced course work as required of other graduate students in the program. All students are required to take **three graduate-level Advanced Courses, which must be at least 3 units** and can be taken any time throughout their graduate studies. The applicability of previous course work toward the Biomedical Sciences Graduate Program course requirements will be evaluated on an ad hoc basis.

MD/PhD students must have conducted research in at least two laboratories of UC San Diego faculty other than their thesis advisor. Laboratory rotations taken during elective time in medical school can fulfill this requirement. At least one laboratory experience must have been in the laboratory of a member of the BMS Program. Based on their rotation experience, MD/PhD students admitted into the BMS program must be able to choose a thesis lab during the summer after their 2nd year of medical school and be ready to participate in the Research Proposition Exam as they begin the graduate program.

MD/PhD students are required to successfully complete the Research Proposition Exam (BIOM 296) during the Fall quarter of their first year of PhD training in the BMS Graduate Program (which would generally be the year after completion of the first two years of medical school) and take the corresponding Grant Writing Essentials course (BIOM 293). This is a requirement for further advancement in the graduate program. MD/PhD students are also expected to successfully complete the Advancement to Candidacy Exam by the end of their second year in PhD training and must complete the exam by the end of the Fall quarter of their third year of PhD training. Failure to complete these requirements on time will result in blockade of registration and financial support until the requirement is met.

Before Advancement to Candidacy, students enroll in BIOM 298 (Directed Study, 12 units, letter grade) each quarter.

Following Advancement to Candidacy, students enroll in BIOM 299 (Independent Study, 12 units, letter grade) each quarter until graduation.

### **13.C. REGISTRATION REQUIREMENTS**

The Graduate Council imposes the following requirements:

If in any given quarter a student is spending the majority of their time within the graduate program the student must be registered as a graduate student that quarter.

To receive the PhD degree a student must be registered as a graduate student for a minimum of 6 academic quarters, three of which are continuous. GEPA has waived the requirement that students be registered as graduate students in the quarter they receive their degree if they are registered in the School of Medicine during that quarter.

The School of Medicine requires, for medical licensing, that students be registered for a minimum of 11 quarters in the medical school.

### **13.D. COMPLETION OF RESEARCH WORK/RETURN TO CLINICAL TRAINING**

All requirements for the PhD degree must be completed prior to leaving the graduate program to return to clinical training (including junior year core clerkships). This includes passing of the Research Proposition examination, teaching requirement, Advancement to Candidacy, writing and defense of the thesis, and submission of the completed thesis manuscript to the library, according to GEPA guidelines. With the above requirements in mind, a typical quarterly program of registration for an MD/PhD student in the Biomedical Sciences Graduate Program is shown below. The normal time to degree for MD/PhD students is 7 years.

### 13.E. SCHEDULE FOR MD/PHD STUDENTS

| Summer  | Fall  | Winter   | Spring   |
|---|---|--|--|
| <b>YEARS 1 and 2 MD</b>   |   |  |  |
| Full time registration (M) and course work in School of Medicine<br>2 or 3 laboratory rotations completed in Summers of years 1 and 2 of Medical School |   |  |  |
| <b>YEAR 3 MD (Year 1 of PhD)</b>  |   |  |  |
| Final Lab rotation (If necessary) (M*)<br>Research Proposition (G)  | Thesis Lab (G): BIOM 298<br>Seminars in Biomedical Research (G): BIOM 201<br>Grant Writing Essentials (G): BIOM 293<br>Research Proposition (G): BIOM 296 | Thesis Lab (G): BIOM 298<br>Advanced Courses** | Thesis Lab (G): BIOM 298<br>Ethics (G): BIOM 219*<br>Statistics (G): BIOM 285<br>Appointment of an Official Thesis Committee (G)<br>Advanced Courses** |
| <b>YEAR 4 MD (Year 2 of PhD)</b>  |   |  |  |
| Thesis Lab (M*)   | Ethics (G): BIOM 219*<br>Thesis Lab (G): BIOM 298<br>Advanced Courses**   | Thesis Lab (G): BIOM 298<br>Advanced Courses** | Thesis Lab (G): BIOM 298<br>Advancement to Candidacy<br>Advanced Courses**   |
| <b>YEAR 5 MD (Year 3 of PhD)</b>  |   |  |  |
| Thesis Lab (M*)   | Thesis Lab (G): BIOM 299  | Thesis Lab (G): BIOM 299                       | Thesis Lab (G): BIOM 299<br>PhD Defense (G)  |
| <b>YEAR 6 MD</b>  |   |  |  |
| Clinical Core (M)   | Clinical Core (M)   | Clinical Core (M)                              | Clinical Core (M)  |
| <b>YEAR 7 MD</b>  |   |  |  |
| Clinical Electives (M)  | Clinical Electives (M)  | Clinical Electives (M)                         | Clinical Electives (M)   |

(M) = Registration in School of Medicine

(G) = Registration in Graduate Program

(M\*) = Full time laboratory work, but registration in the School of Medicine

\*Ethics requirement will be met in either Spring or Fall depending on assignment.

\*\* = All students are required to take **three graduate-level Advanced Courses, which must be at least 3 units** and can be taken any time throughout their graduate studies.

The graduate program does not require registration during the summer; these quarters can be counted toward the School of Medicine 11 quarter registration minimum.

## 14. GUIDELINES FOR BMS PHARM D/PHD CANDIDATES

### 14.A. ADMISSIONS REQUIREMENTS

PharmD/PhD applicants must meet the requirements established by the BMS Program for admission of PharmD/PhD applicants. GRE scores are not required, and copies of academic records may be submitted by the School of Pharmacy. Students are evaluated during their second year of study for matriculation into the PhD program during their third year.

### 14.B. COURSE WORK AND ROTATIONS

PharmD/PhD students are required to take the Fall seminar course (BIOM 201), Ethics in Scientific Research (BIOM 219) and Statistical Inference in the Medical Sciences (BIOM 285) in the Spring quarter. PharmD/PhD students must also complete all Biomedical Sciences advanced course work as required of other graduate students in the program. All students are required to take **three graduate-level Advanced Courses, which must be at least 3 units** and can be taken any time throughout their graduate studies. The applicability of previous course work toward the Biomedical Sciences Graduate Program course requirements will be evaluated on an ad hoc basis.

PharmD/PhD students must have conducted research in at least two laboratories of UC San Diego faculty other than their thesis advisor. PharmD/PhD students will be guided to complete these laboratory rotations taken during the summers before the first year, between the first and second years, or between the second and third years of the pharmacy school curriculum to fulfill this requirement. At least one laboratory research experience must have been in the laboratory of a member of the BMS Program. The evaluations of student performance during these rotations will be an important part of the application file for acceptance into the BMS program.

PharmD/PhD students are required to successfully complete the Research Proposition (BIOM 296) Exam during the Fall quarter of their first year of PhD training in the Biomedical Sciences Graduate Program and take the corresponding Grant Writing Essentials course (BIOM 293). This is a requirement for further advancement in the graduate program. PharmD/PhD students are also expected to successfully complete the Advancement to Candidacy Exam by the end of their second year in PhD training and must complete the exam by the end of the Fall quarter of their third year of PhD training. Failure to complete these requirements on time will result in blockade of registration and financial support until the requirements are met.

Before Advancement to Candidacy, students enroll in BIOM 298 (Directed Study, 12 units, letter grade) each quarter.

Following Advancement to Candidacy, students enroll in BIOM 299 (Independent Study, 12 units, letter grade) each quarter until graduation.



#### **14.C. REGISTRATION REQUIREMENTS**

The Graduate Council imposes the following requirements:

If in any given quarter a student is spending the majority of their time within the graduate program the student must be registered as a graduate student that quarter.

To receive the PhD degree a student must be registered as a graduate student for a minimum of 6 academic quarters, three of which are continuous.

The School of Pharmacy requires, for licensing, that students be registered for a minimum of 12 quarters in the pharmacy school.

#### **14.D. COMPLETION OF RESEARCH WORK/RETURN TO PHARMACY TRAINING**

All requirements for the PhD degree must be completed prior to leaving the graduate program to return to pharmacy training. This includes completion of the Research Proposition and the Advancement to Candidacy examinations, writing and defense of the thesis, and submission of the completed thesis manuscript to the library, according to GEPA guidelines. With the above requirements in mind, a typical quarterly program of registration for a PharmD/PhD student in the Biomedical Sciences Graduate Program is shown below. The normal time to degree for PharmD/PhD students is 7-8 years.

## 14.E. SCHEDULE FOR PHARMD/PHD STUDENTS

| Summer   | Fall  | Winter  | Spring   |
|--|---|---|--|
| <b>YEARS 1 and 2</b>   |   |   |  |
| Full time registration (P) and course work in the Pharmacy School<br>2 or 3 laboratory rotations completed in summers between years 1-2 and years 2-3 (*P) |   |   |  |
| <b>YEAR 3 (Year 1 of PhD)</b>  |   |   |  |
| Final Lab rotation<br>(If necessary)<br>(P*)<br>Research Proposition (G)   | Thesis Lab (G) – BIOM 298<br>Seminars in Biomedical Research (G) - BIOM 201<br>Grant Writing Essentials (G) - BIOM 293<br>Research Proposition (G) - BIOM 296 | Thesis Lab (G) - BIOM 298<br>Advanced Courses** | Thesis Lab (G) - BIOM 298<br>Ethics (G) - BIOM 219*<br>Statistics (G) - BIOM 285<br>Appointment of an Official<br>Thesis Committee (G)<br>Advanced Courses** |
| <b>YEAR 4 (Year 2 of PhD)</b>  |   |   |  |
| Thesis Lab   | Ethics (G) - BIOM 219*<br>Thesis Lab (G) - BIOM 298<br>Advanced Courses**   | Thesis Lab (G) - BIOM 298<br>Advanced Courses** | Thesis Lab (G) - BIOM 298<br>Advancement to Candidacy<br>Advanced Courses**  |
| <b>YEAR 5 (Year 3 of PhD)</b>  |   |   |  |
| Thesis Lab   | Thesis Lab (G) - BIOM 299   | Thesis Lab (G) - BIOM 299                       | Thesis Lab (G) - BIOM 299<br>PhD Defense (G)   |
| <b>YEAR 6 (Year 3 of PharmD)</b>   |   |   |  |
| Pharmacy (P)   | Year 3 Curriculum   | Year 3 Curriculum                               | Year 3 Curriculum  |
| <b>YEAR 7 (Year 4 of PharmD)</b>   |   |   |  |
| Pharmacy (P)   | Clinical Core   | Clinical Core                                   | Clinical Core  |

(P) = Registration in SKAGGS School of Pharmacy

(G) = Registration in Graduate Program

(P\*) = Full time laboratory work, but registration in the School of Pharmacy. The graduate program does not require registration during the summer; these quarters can be counted toward the School of Pharmacy 12 quarter registration minimum.

\*Ethics requirement will be met in either Spring or Fall depending on assignment.

\*\* = All students are required to take **three graduate-level Advanced Courses, which must be at least 3 units** and can be taken any time throughout their graduate studies.

## **15. UC San Diego Principles of Community**

The University of California, San Diego is dedicated to learning, teaching, and serving society through education, research, and public service. Our international reputation for excellence is due in large part to the cooperative and entrepreneurial nature of the UC San Diego community. UC San Diego faculty, staff, and students are encouraged to be creative and are rewarded for individual as well as collaborative achievements.

To foster the best possible working and learning environment, UC San Diego strives to maintain a climate of fairness, cooperation, and professionalism. These principles of community are vital to the success of the University and the well being of its constituents. UC San Diego faculty, staff, and students are expected to practice these basic principles as individuals and in groups.

We value each member of the UC San Diego community for their individual and unique talents, and applaud all efforts to enhance the quality of campus life. We recognize that each individual's effort is vital to achieving the goals of the University.

We affirm each individual's right to dignity and strive to maintain a climate of justice marked by mutual respect for each other.

We value the cultural diversity of UC San Diego because it enriches our lives and the University. We celebrate this diversity and support respect for all cultures, by both individuals and the University as a whole.

We are a university that adapts responsibly to cultural differences among the faculty, staff, students, and community.

We acknowledge that our society carries historical and divisive biases based on race, ethnicity, sex, gender identity, age, disability, sexual orientation, religion, and political beliefs. Therefore, we seek to foster understanding and tolerance among individuals and groups, and we promote awareness through education and constructive strategies for resolving conflict.

We reject acts of discrimination based on race, ethnicity, sex, gender identity, age, disability, sexual orientation, religion, and political beliefs, and, we will confront and appropriately respond to such acts.

We affirm the right to freedom of expression at UC San Diego. We promote open expression of our individuality and our diversity within the bounds of courtesy, sensitivity, confidentiality, and respect.

We are committed to the highest standards of civility and decency toward all. We are committed to promoting and supporting a community where all people can work and learn together in an atmosphere free of abusive or demeaning treatment.

We are committed to the enforcement of policies that promote the fulfillment of these principles.

We represent diverse races, creeds, cultures, and social affiliations coming together for the good of the University and those communities we serve. By working together as members of the UC San Diego community, we can enhance the excellence of our institution.