



**GRADUATE SCHOOL  
OF BIOMEDICAL SCIENCES**

**Molecular Pathology and Immunology Program  
STUDENT HANDBOOK**

**2022-2023**

## FORWARD

Welcome to the Rowan University Graduate School of Biomedical Sciences (RowanGSBS). We are located on the Stratford campus of Rowan University. We have all the benefits of a large University but with a small campus feel. The RowanGSBS has assembled this Molecular Pathology and Immunology (MPI) Program Student Handbook to assist you in understanding the operations, procedures, and rules of this program. The RowanGSBS [General Information Student Handbook](#) contains useful information on the facilities available on the Stratford campus of Rowan University; specific student services available to you; and a summary of University and GSBS policies pertinent to graduate students.

***The mission of the Rowan University Graduate School of Biomedical Sciences is to develop scientists who will contribute new knowledge in the biomedical disciplines through creative research and scholarship. This is accomplished through a curriculum of course work and research training that prepares our students to critically evaluate existing knowledge and to advance the frontiers of new knowledge in the biomedical sciences.***

Molecular Pathology and Immunology Program: This document contains a summary description of the course work that must be completed to earn a:

1. Master of Science in Molecular Pathology and Immunology degree (M.S.; thesis)

University-wide emergency information: <http://www.rowan.edu/emergency> or 856-256-4922

The GSBS reserves the right to change or modify the procedures and policies contained within this document. Please check the [GSBS website](#) on a regular basis for the most current information on programs, services, news and events.

"This handbook is informational only and does not constitute a contract between Rowan University and any student. It may be changed by Rowan University without prior notice to students. Any rules, regulations, policies, procedures or other representations made herein may be interpreted and applied by Rowan University to promote fairness and academic excellence, based on the circumstances of each individual situation.

This handbook represents a program of the current curricula, educational plans, offerings and requirements of the Rowan University Graduate School of Biomedical Sciences. The School reserves the right to change any provisions, offerings, tuition, fees, or requirements at any time within the student's period of study at Rowan University. In addition, Rowan University may at any time eliminate, modify or change the location of any School, Institute, Center, Program, Department, course or academic activity."

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### ADMINISTRATION

#### **RowanGSBS ADMINISTRATION AND STAFF:**

Senior Associate Dean, GSBS	Carl Hock, Ph.D.	<a href="mailto:hock@rowan.edu">hock@rowan.edu</a>
Director	Diane Worrad, Ph.D.	<a href="mailto:worrad@rowan.edu">worrad@rowan.edu</a>
Program Support Coordinator	Krystal Murtha, M.B.A.	<a href="mailto:mcerlakl@rowan.edu">mcerlakl@rowan.edu</a>
Program Coordinator	Amanda Powell	<a href="mailto:ellisa@rowan.edu">ellisa@rowan.edu</a>
Program Assistant	Coleen Tenuto	<a href="mailto:tenuto@rowan.edu">tenuto@rowan.edu</a>
Administrative Assistant		

Office Address: 42 East Laurel Road  
Rowan Medicine Building, Suite 2200  
Stratford, NJ, 08084

Phone: 856-566-6282  
Email: [gsbs-stratford@rowan.edu](mailto:gsbs-stratford@rowan.edu)

#### **GSBS DEPARTMENTS**

The administration for the departments of Cell Biology & Neuroscience and Molecular Biology are located at 42 East Laurel Road, Rowan Medicine Building, Suite 2200 on the Stratford campus.

##### Cell Biology & Neuroscience Department

Chair	Barry Waterhouse, Ph.D.	566-6407
Business Administrator	Lynn Robbins	566-6417
Program Support Specialist	Lisa Stressman	566-6078
Budget Analyst	Alisa Corbitt	566-6067
Administrative Assistant	Marquishia Stringfield	566-6231

##### Molecular Biology Department

Chair	Salvatore Caradonna, Ph.D.	566-6056
Business Administrator	Karen Baines	566-7003
Program Assistant	Renee Fidler	566-6049
Administrative Assistant	Theresa Luscko	566-6077

## REGISTRAR'S OFFICE

The Rowan University Registrar's Office is responsible for the registration of all GSBS students as well as preparation, maintenance and issuance of all official grades and records pertaining to GSBS students. The Registrar's office is located on the bottom floor of Savitz Hall in Glassboro. Contact them by email at [registrar@rowan.edu](mailto:registrar@rowan.edu) or by telephone (856) 256-4350.

## STUDENT SUPPORT

### PROGRAM DIRECTOR

Molecular Pathology and Immunology Salvatore Caradonna, Ph.D. [caradonn@rowan.edu](mailto:caradonn@rowan.edu)

### CENTER FOR STUDENT SUCCESS

Mary Sylvester-Pegues, Program Coordinator for GSBS Students [sylvesterpegues@rowan.edu](mailto:sylvesterpegues@rowan.edu) Academic Center, Suite 210

The Center for Student Success (CSS) was established to maximize the educational experiences of GSBS and SOM students. CSS staff provide a variety of supportive academic services, including: 1) individual consultation on study strategies and learning styles, 2) group workshops on topics related to academic success, 3) individual meetings to review curriculum requirements and create an individualized academic plan and 4) workshops and individual consultations on test-taking strategies.

### DISABILITY SERVICES

Jacqueline Giacobbe, Assistant Dean [giacobja@rowan.edu](mailto:giacobja@rowan.edu) Academic Center, Suite 210

Rowan University School of Osteopathic Medicine or RowanGSBS does not discriminate in admission or access to its programs and activities on the basis of race/color, ethnicity, national origin, religion/creed, disability, age, marital status, sexual orientation or veteran's status. The University will provide, if requested, reasonable accommodations to otherwise-qualified enrolled students and candidates with disabilities. Further information about accommodations can be obtained from SOM/GSBS Disability Services at 856-566-6980.

## STUDY SKILLS FOR GRADUATE SCHOOL AND BEYOND

The "Study Skills for Graduate School and Beyond" book is available [online](#) to every student. It provides many helpful strategies [1) Time Management and Organization, 2) Learning the Material, 3) Test-Taking, and 4) Mental and Physical Health] to assist students in designing a study plan.

**OTHER RELEVANT DEPARTMENTS can be found in the [GSBS General Information Student Handbook](#).**

## MOLECULAR PATHOLOGY AND IMMUNOLOGY PROGRAM OF STUDY

**Goal: Prepares students for careers in molecular diagnostics.**

In formal affiliation with Genesis Biotechnology Group (GBG) (Hamilton, New Jersey), the Graduate School of Biomedical Sciences at the School of Osteopathic Medicine in Stratford, New Jersey is offering a graduate program entitled "Master of Science in Molecular Pathology and Immunology". The program is designed to prepare students for careers in diagnostic, immunology, molecular biology and pathology laboratories.

The 17-month program is designed to efficiently move students through a didactic and practical educational experience. Emphasis is placed on guided independent learning. This is coupled with practical experience in private sector biotechnology laboratory environments to train students in molecular aspects of biomedical diagnosis.

In the Fall and Spring terms, full-time matriculated students are expected to carry a minimum course load of 9 credits per semester while part-time students must carry a minimum of 5 credits per semester. In the Summer term,

full-time matriculated students are expected to carry a minimum course load of 4 credits per semester while part-time students must carry a minimum of 2 credits per semester.

## REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE

The requirements for the Master of Science degree is designed to be completed 17 months but must be completed within four years.

The minimum requirements for the Master of Science degree in the Molecular Pathology and Immunology Program are as follows:

1. At least 24 course credits of required course work beyond the baccalaureate and 7 credits of thesis research.
2. A thesis proposal acceptable to the candidate's Thesis Advisory Committee and the Executive Council of the Graduate School. The thesis must be based upon their original research.
3. A dissertation based upon independent research prepared by the candidate and acceptable to the Thesis Advisory Committee.
4. A public defense of the dissertation.

## CURRICULUM FOR THE M.S. DEGREE

**Required Courses.** Students must pass the following required courses (31 credits) and earn a cumulative 3.00 or higher overall grade point average (GPA):

Biochemistry and Molecular Biology (3 credits)  
Cell Biology (3 credits)  
Molecular Pathology and Immunology Seminar (2 credits; fall and spring)\*  
Immunology (3 credits)  
Spring term Elective (Biomedical Anatomy, Biomedical Data Analysis, Principles of Pharmacology, Antimicrobial Drugs or Systems Physiology)  
Fall term Elective (Mechanisms of Disease, Human Genetics, Microbiology)

Responsible Conduct of Research training (0 credits)  
Laboratory Rotation (Two rotations are required; optional 3<sup>rd</sup> rotation) (1 credit each)\*  
Molecular Pathology & Immunology Research I & II (1 & 2 credits, respectively)\*  
Thesis Research / MSMPI (7 credits)\*  
MS Thesis Continuation (1-9 credits)\* - [M.S.Thesis Continuation Registration Approval Form](#)

\* This course offered only on the GBG campus in Hamilton, NJ.

### Deadlines:

First year:	December 31 <sup>st</sup>	Student will select a laboratory and Thesis Mentor
	April 15 <sup>th</sup>	Student will select his/her Thesis Advisory Committee
	July 1	Student will orally present Thesis Proposal
Second year:	February 1 <sup>st</sup>	Student will orally defend his/her thesis

Students electing the Master of Science in Molecular Pathology and Immunology Program (thesis only) will be required to satisfactorily complete a research thesis acceptable to the Thesis Advisory Committee of the student.

**GSBS students in all programs of study are required to maintain Good Academic Standing.** Please see your program-specific policy for details: [Academic Standing-Molecular Pathology and Immunology program](#)

The Chart of the MSMPI Curriculum, the current course listings and course descriptions can be found here <https://gsbs.rowan.edu/student-resources/registrar/registration.html> on the GSBS website.

## **QUALIFYING REQUIREMENTS FOR A MASTER OF SCIENCE (THESIS) STUDENT**

### **GENERAL**

A Master of Science thesis is 7 credits, must be laboratory (not library) based and must be hypothesis driven. The thesis is usually done over two or more semesters. The conclusion of the research is based on testing the hypothesis but not necessarily on proving the hypothesis (unlike a doctoral thesis). Each Master's thesis student MUST defend his/her thesis.

### **SELECTION OF A MENTOR**

It is the student's responsibility to find a faculty mentor. Students are strongly encouraged to become aware of the research programs of individual faculty members during their first year in the graduate school. This can be done by going to the GSBS website, attending seminars, perusing the individual faculty members' web sites, and having discussions with individual faculty members.

The graduate student must notify the Director in writing of his/her selection of a faculty mentor; the selection must be by mutual agreement.

### **GUIDELINES FOR STUDENTS PERFORMING RESEARCH FOR THE M.S. DEGREE AT AN OFF-CAMPUS LOCATION**

Most research for the M.S. degree is done on campus with one of the faculty of the GSBS. In cases where students choose to perform research in a laboratory that is not on our campus the following guidelines must be followed:

- The off-campus advisor must have an appointment as a GSBS Graduate Faculty Member.
- The student must have a Mentor-of-Record who is a full member of the GSBS Graduate Faculty.
- At least two members of the Thesis Advisory Committee must be from the full-time graduate faculty.  
The arrangement must be approved by the department of the Mentor-of-Record (Chair and Program Director) and the Executive Council.
- The work to be performed must conform to the same standards as those applied to other students in GSBS (high standards of excellence, scholarly in nature, non-proprietary and hypothesis driven).

### **NOMINATION OF THE THESIS ADVISORY COMMITTEE**

The Thesis Advisory Committee should be established shortly after the student completes his/her last rotation and selects a mentor. The student's thesis advisor will serve as the chairperson of this committee and must be a full-titled member of the Graduate Faculty. The committee must be composed of the mentor and two others, two of whom must be members of the GSBS faculty within the program. One of the Thesis Advisory Committee members may be from outside Rowan University if his/her expertise is appropriate. The student and mentor nominate the committee members using the *Thesis Advisory Committee Nomination Form* (see [GSBS Student Forms](#)). Each nomination should be supported by a brief explanation for the individual's selection to the Committee. The signed form is given to the Department Chair for approval. The Department Chair or Senior Associate Dean may recommend committee members other than those nominated. The signed nomination form is given to the Director for submission to the Executive Council. The final membership of the committee is approved by the Executive Council.

The Thesis Advisory Committee will have oversight responsibility for the development of the student and his/her thesis project. This committee will continually monitor the research competency and progress. The committee should work for the mutual benefit of the student and his/her faculty mentor. While the committee should uphold suitably high standards for the student and assist the mentor in achieving his/her research goals, they should also ensure fairness and act in the best interest of the student's education and career.

## PREPARE THE THESIS PROPOSAL

The thesis proposal is written in the format of a grant application:

**Title page** should contain:

Title in capital letters  
Name of the student  
Name of the mentor  
Date of Qualifying Exam

### **Abstract (250 words)**

A summary of the entire proposal.

### **Specific Aims (1 page)**

Concise descriptions of the hypothesis to be tested and each experimental aim. Two to three aims is usually appropriate.

### **Background and Significance (1-2 pages)**

A brief overview of the issues that lead to the present proposal containing sufficient information to understand the experimental aims and relate them to overall scientific objectives. Not a review of all the related science. Section headings suggested.

### **Preliminary Results (1-2 pages, including figures)**

Brief description of findings by the student and/or the laboratory that are directly relevant to the experimental aims of the proposal. Should indicate who is responsible for the data if not the student. Figures should be concisely captioned. Details of methods are not necessary.

### **Experimental Design And Methods (2-4 pages)**

The rationale, approach, procedures, expected outcomes and their interpretations, possible difficulties, and alternative approaches for each aim. Should include a tentative sequence or timeline.

### **Human Subjects and/or Non-Human Vertebrates**

Rationale for use of protected subjects and the procedures relevant to protecting their welfare.

### **References**

The references may be numbered or alphabetized and must include authors, title, journal, volume, page numbers and year.

All pages should have margins of no more than 1 inch, lines of no more than 1.5 spacing, and a font no smaller than 12 pt Times New Roman.

The student should prepare a draft of the proposal and submit it to his/her mentor. The mentor should not write or re-write the proposal. The mentor is expected to guide the selection of the issues to be addressed and experimental approaches. Ideas and preliminary data may come from others. It is recommended that at least one person other than the mentor read a draft of the proposal, such as a member of the student's committee. However, it is expected that the student is the sole author of the proposal.

The written thesis proposal must be submitted to each member of the committee two weeks prior to the date of the presentation of the thesis proposal. Because writing and revising the final draft of the proposal may take many days to weeks, it is strongly recommended that the student prepare a complete draft of the proposal at least one month in advance of the expected exam date. If the committee is not given sufficient time to review the written proposal or if the proposal is obviously substandard, the committee may elect to postpone the scheduled examination.

All Master of Science students should prepare a short PowerPoint presentation outlining the thesis proposal to give at the Qualifying Examination. It is best for the student to have a well-prepared presentation.

Submit the Thesis Proposal to the members of the approved Thesis Advisory Committee and have them sign the *Thesis Proposal Form* (see [GSBS Student Forms](#)). Submit the signed and dated *Thesis Proposal Form* and a hard copy of the Thesis Proposal to the GSBS Office.

## THESIS DEFENSE CHECKLIST

Go to the [Molecular Pathology and Immunology Thesis Defense Checklist](#) to download the guide to finish the MS program.

### GUIDELINES FOR DISSERTATION PREPARATION FOR MASTER OF SCIENCE STUDENTS

After completion of the dissertation research, the student prepares a dissertation in the format specified by the GSBS.

1. Submit all final copies on 24 lb paper. Please see next section for details.
2. PAPER: standard size, 8 1/2" x 11" bond; 25% rag content (24 lb).
3. MARGINS: 1 3/4" from left; 1 1/4" from top; 1" from right and bottom
4. TYPING SPACING: Single side, double space throughout the text.
5. TITLE PAGE should contain:
  - Title in capital letters;
  - Name of the candidate AND degrees already awarded, i.e. B.S., B.A.
  - The statement: "A Dissertation submitted to the Graduate School of Biomedical Sciences, Rowan University in partial fulfillment of the requirements for the M.S. Degree."
  - Two lines down from this statement is followed at the bottom of the Title Page by "Stratford, New Jersey 08084".
  - Two lines down from "Stratford, New Jersey 08084", place the "Month and Year" during which the thesis is being presented.
6. PAGE NUMBERING: All pages should be numbered consecutively except the Title page. The Table of Contents page should be numbered as page 2.
7. FORMAT
  - Table of Contents
  - Acknowledgments (include the sources of financial support)
  - Abstract (Not to exceed 250 words, double-spaced)
  - Introduction
  - Rationale
  - Materials and Methods
  - Experimental Results
  - Discussion
  - Summary and Conclusions
  - References
  - Appendix, Abbreviations list.
  - Attributes

Use a new page for each segment or division. Footnotes are allowed to be included at the bottom of the same page. Use standard abbreviations for chemical symbols, Journals, units of measurements.
8. FIGURES, TABLES AND ILLUSTRATIONS:
  - Should be numbered consecutively in Arabic numbers.
  - Should include self-explanatory legends and title on the same page. If this is not feasible, use the next numbered page and turn the legend page so that it faces the figure.
  - Type legends preferably 1 1/2" space.



- Do not use oversize tables, figures or illustration; if necessary, reduce to 5" x 8" overall.
- Insert figures, tables and illustrations as close as possible to the text describing the results.

9. REFERENCES:

References may be arranged in the text either by mentioning the surname of the first (1-3) authors and year of publication, or by consecutive numbers in the order of citation.

Give the complete title and all co-authors (surnames and initials) of each paper included in the bibliography. Arrange in alphabetical sequence according to senior (co) author's surname, or in the numerical order of citation in the text.

Multiple lines of each reference should be typed single-spaced.

Allow double space between references.

10. ATTRIBUTES OF THE THESIS:

A Figure-by-Figure description as to who specifically performed the experiment presented in each figure is required because multiple authorship papers are becoming more common and proper authorship must be declared.

## **DEFENSE OF THE MASTER OF SCIENCE DISSERTATION**

All Master of Science (thesis) students will be required to defend his/her thesis.

### ***Defense of Dissertation***

Receive Approval to Write – This is decided at a thesis committee meeting.

Set defense date with your Thesis Advisory Committee:

- Book a room on the Genesis Biotechnology Group campus and provide them with your title and abstract.
- Provide the GSBS office with title, abstract, date, room, and time details.

Submit written final draft of dissertation to Thesis Advisory Committee and GSBS office *at least* two weeks prior to defense date.

The GSBS Office will review formatting and inform student of required changes.

On Defense Day, bring the [Final Dissertation Defense Report Form](#) to your defense to obtain your Thesis Advisory Committee signatures.

After your defense, bring this signed Final Dissertation Defense Report form to the GSBS office to obtain the department chair signature.

If dissertation revisions are necessary, the GSBS office will contact the student and mentor with the follow-up procedure.

Minor revisions must be completed within six months of the defense or the student may be required to re-defend.

### ***Final Written Dissertation***

Once the GSBS Office receives the fully executed [Final Dissertation Defense Report Form](#) (with the mentor's initials and date, if thesis revisions are required), we will notify you to:

- Submit to the GSBS Office ([gsbs-stratford@rowan.edu](mailto:gsbs-stratford@rowan.edu)), a PDF of your final approved dissertation.
- Submit 6 copies (see below) of the revised, approved dissertation on 24lb paper to the GSBS Office.

The GSBS Office will bind all of the required approved dissertations. The distribution of the thesis is as follows:

First copy:	Graduate
Second copy:	Mentor (thesis advisor)
Third copy:	GSBS Office
Fourth copy:	Library, Health Services Library (Stratford campus of Rowan University)
Fifth copy:	Library, Science Center (Stratford campus of Rowan University) OR Library, Genesis Biotechnology Group (MSMPI students only)
Sixth copy:	Mentor-of-Record

Students can expect the bound copies to be available to them 1-2 months after submission.

### **GRADUATION, DIPLOMAS AND COMMENCEMENT**

Graduation Information may be found on the bottom of the [GSBS Student Resources page](#). This includes:

1. Graduation Process and Important Deadlines
2. Graduation Application Instructions
3. Graduation vs Commencement
4. Commencement Information

All students must apply to graduate in Self-Service Banner. Rowan University confers degrees at the end of the Fall (December), Winter (January), Spring (May), and Summer (August) terms.

The Commencement Ceremony is held in May. Please note that **NO** student will receive his/her diploma at Commencement. The student will receive his/her diploma approximately 8-12 weeks after the degree conferral term.

### **STAY CONNECTED**

- Complete the [Alumni Registration Form](#)
- Enroll in LinkedIn, a professional networking site. It's free: <https://www.linkedin.com>