

# IMMUNOLOGY (IMM) – PROFESSIONAL MASTER'S

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## Application

Candidates must complete a Professional Master's Degree Application form. This form is available on the MCGSBS Master's Programs intranet site. Supporting documents include a program fee agreement form, transcripts from previous colleges and two letters of recommendation - one preferred from your direct supervisor/manager.

## Eligibility

Enrollment is restricted to current Mayo employees/appointees and is available at all three sites: Arizona, Florida, and Minnesota, as well as the Mayo Clinic Health System. Visiting clinicians, research trainees, and research collaborators are not eligible.

Applicants must have received a bachelor's degree from an accredited college or university, must have taken appropriate undergraduate science courses to adequately prepare for the Master's program, must have a minimum undergraduate grade point average that demonstrates a record of academic excellence.

## Time Requirement

Time to completion can vary by student (three to five years), but all requirements for the Master's degree must be completed within five years. The five-year period begins on the start date of the term the student is appointed to. If the student's Mayo employment ends prior to completion of the program, the MCGSBS appointment will also end.

## Registration Requirement

At least 75% of the coursework for the Master's degree must be completed in MCGSBS.

## Minimum Credit Requirements

Students must complete a minimum of 45 credits, including MGS 6000 Responsible Conduct of Research. Didactic credits may vary by track - refer to specific program requirements for details.

## Transfer Credits

A total of 9 didactic credits may be transferred into the Professional Master's Program. For more details, see the Credit Conversion, Transfer, Waiver and Substitution Policy on the MCGSBS intranet site.

## Course Requirements

A total of **45 credits** with maintenance of at least a 3.0 GPA are required for graduation.

| Code                      | Title                           | Hours |
|---------------------------|---------------------------------|-------|
| <b>MGS Course</b>         |                                 |       |
| MGS 6000                  | Responsible Conduct of Research | 1     |
| MGS 6400                  | Master's Capstone Project       | 6     |
| <b>Track Requirements</b> |                                 |       |

|          |   |   |
|----------|---|---|
| IMM 5100 | Basic Graduate Immunology                                       | 3 |
| IMM 6863 | Current Topics in Immunology (One credit per term) <sup>1</sup> | 4 |
| IMM 6878 | Tutorial in Innate Immunity                                     | 2 |
| IMM 6879 | Tutorial in Adaptive Immunity                                   | 2 |
| IMM 6880 | Tutorial in Tissue Immunity                                     | 2 |
| IMM 6882 | Tutorial in Bridging Innate and Adaptive Immunity               | 2 |
| IMM 6884 | Tutorial in Generation and Function of T Cells                  | 2 |
| IMM 6885 | Tutorial in Generation and Function of B Cells                  | 2 |

### Advanced Coursework

Credits can be selected from any field; with no more than nine credits in seminar or journal club style courses.

**Total Hours** 45

<sup>1</sup> Current Topics courses may be taken more than once

Students who are not currently enrolled in a degree program (including all employee master's students) must first obtain a signature from the Immunology program director before enrolling in any IMM tutorial course.

Program milestones are included in the Academic Progress and Graduation Requirements for Masters Programs Policy. See below for Immunology-specific program highlights and instruction.

Students are expected to make continuous and successful academic and professional progress toward graduation requirements for the M.S. degree. The concept of satisfactory progress mandates monitoring of a students' academic and professional performance through items including, but not limited to:

- Complete Degree Planning Tool (DPT)
- Project Advisor Selection
- Pass Written Qualifying Exam
- Masters Capstone Project
- Meet any program specific competencies as defined by track

Full details are included in the Academic Progress and Graduation Requirements for Masters Programs Policy on the MCGSBS intranet site.

## Minimum Grade Requirements

Students are expected to maintain a grade point average of 3.0 in didactic course work. Students whose performance falls below this standard in a given quarter will be placed on academic probation, as described in the Deficiencies and Unsatisfactory Progress Policy and Warning, Probation, Dismissal and Appeal Policy outlined on the MCGSBS intranet site.

## Degree Planning Tool

The use of a Degree Planning Tool (DPT) is required and allows students to list the course work to fulfill degree requirements, including transfer credits. The DPT must be completed during the first academic year and should be updated as courses are completed throughout the training program. A final completed DPT must be submitted to the school when a tentative defense date has been determined to be cleared to graduate.

## Project Advisor Selection

Project Advisor is selected with counsel from Program Director, done at any time during training but no later than end of year. A list of Faculty with Privileges can be found on the MCGSBS intranet site.

## Written Qualifying Examination

The written qualifying examination will test the breadth of biomedical knowledge, and analytic and critical reasoning skills. The content and format of the examination is determined by each track. The written qualifying examination must be passed before the Master's final project review may be scheduled.

For more details, see the Written Qualifying Exam Procedure on the MCGSBS intranet site.

## Masters Capstone Project

This is required for all students in the Professional Master's Program and serves as the final academic milestone of the degree. Students will complete a scholarly project that demonstrates mastery of their chosen track and area of interest. Projects may take the form of a critical review article, original research manuscript, case study, or another approved scholarly product suitable for presentation or publication. Students must register for MGS 6400 Masters Capstone Project during their final quarter in the program. The course may only be taken once for credit. Students must register with the Program Director for their track as the course director.

## Course Sequence

*This is a suggested sequence based on a summer term start. Individual course plans may vary depending on true start date, program, employment/ personal commitments, and research interests. Be sure to confirm you have met your requirements using your degree planning tool. Course offerings may vary slightly. Current course offerings are posted in the course catalog.*

| Code                            | Title                           | Hours |
|---------------------------------|---------------------------------|-------|
| <b>First Year - Summer Term</b> |                                 |       |
| MGS 6000                        | Responsible Conduct of Research | 1     |
| IMM 5200                        | Introduction to Flow Cytometry  | 1     |

| Code                          | Title                     | Hours |
|-------------------------------|---------------------------|-------|
| <b>First Year - Fall Term</b> |                           |       |
| IMM 5100                      | Basic Graduate Immunology | 3     |

| Code                            | Title  | Hours |
|---------------------------------|--|-------|
| <b>First Year - Winter Term</b> |  |       |
| IMM 6885                        | Tutorial in Generation and Function of B Cells (Even years)  | 2     |
| IMM 6884                        | Tutorial in Generation and Function of T Cells (Even year)   | 2     |
| IMM 6882                        | Tutorial in Bridging Innate and Adaptive Immunity (Odd year) | 2     |
| IMM 6878                        | Tutorial in Innate Immunity (Odd year)                       | 2     |
| IMM 6867                        | Colloquium in Research                                       | 1     |

| Code                            | Title                                     | Hours |
|---------------------------------|---|-------|
| <b>First Year - Spring Term</b> |   |       |
| IMM 6879                        | Tutorial in Adaptive Immunity (Even year) | 2     |

|          |  |   |
|----------|--|---|
| IMM 6880 | Tutorial in Tissue Immunity (Odd year) | 2 |
| IMM 6863 | Current Topics in Immunology           | 1 |

| Code                             | Title   | Hours |
|----------------------------------|---|-------|
| <b>Second Year - Summer Term</b> |   |       |
| IMM 6882                         | Tutorial in Bridging Innate and Adaptive Immunity | 2     |

| Code                           | Title                        | Hours |
|--------------------------------|------------------------------|-------|
| <b>Second Year - Fall Term</b> |                              |       |
| IMM 6863                       | Current Topics in Immunology | 1     |

| Code                             | Title  | Hours |
|----------------------------------|--|-------|
| <b>Second Year - Winter Year</b> |  |       |
| IMM 6885                         | Tutorial in Generation and Function of B Cells (Even year) | 2     |

|          |  |   |
|----------|--|---|
| IMM 6884 | Tutorial in Generation and Function of T Cells (Even year) | 2 |
|----------|--|---|

|          |  |   |
|----------|--|---|
| IMM 6878 | Tutorial in Innate Immunity (Odd year) | 2 |
|----------|--|---|

|          |  |   |
|----------|--|---|
| IMM 6882 | Tutorial in Bridging Innate and Adaptive Immunity (Odd year) | 2 |
|----------|--|---|

|          |                        |   |
|----------|------------------------|---|
| IMM 6867 | Colloquium in Research | 1 |
|----------|------------------------|---|

| Code                             | Title                                     | Hours |
|----------------------------------|---|-------|
| <b>Second Year - Spring Term</b> |   |       |
| IMM 6879                         | Tutorial in Adaptive Immunity (Even year) | 2     |
| IMM 6880                         | Tutorial in Tissue Immunity (Odd year)    | 2     |
| IMM 6863                         | Current Topics in Immunology              | 1     |

| Code                            | Title | Hours |
|---------------------------------|-------|-------|
| <b>Third Year - Summer Term</b> |       |       |

| Code                          | Title | Hours |
|-------------------------------|-------|-------|
| <b>Third Year - Fall Term</b> |       |       |

| Code                            | Title | Hours |
|---------------------------------|-------|-------|
| <b>Third Year - Winter Term</b> |       |       |

| Code                            | Title  | Hours |
|---------------------------------|--|-------|
| <b>Third Year - Spring Term</b> |  |       |
| IMM 6863                        | Current Topics in Immunology                               | 1     |
| IMM 6865                        | Regenerative T Cell Immunotherapy and Cellular Engineering | 3     |

| Code                             | Title | Hours |
|----------------------------------|-------|-------|
| <b>Fourth Year - Summer Term</b> |       |       |

| Code                           | Title                        | Hours |
|--------------------------------|------------------------------|-------|
| <b>Fourth Year - Fall Term</b> |                              |       |
| IMM 6863                       | Current Topics in Immunology | 1     |

| Code                             | Title | Hours |
|----------------------------------|-------|-------|
| <b>Fourth Year - Winter Term</b> |       |       |

| Code                             | Title                        | Hours |
|----------------------------------|------------------------------|-------|
| <b>Fourth Year - Spring Term</b> |                              |       |
| IMM 6863                         | Current Topics in Immunology | 1     |

|          |  |   |
|----------|--|---|
| IMM 6865 | Regenerative T Cell Immunotherapy and Cellular Engineering | 3 |
|----------|--|---|

|                                 |              |              |
|---------------------------------|--------------|--------------|
| <b>Code</b>                     | <b>Title</b> | <b>Hours</b> |
| <b>Fifth Year - Summer Term</b> |              |              |

|                               |              |              |
|-------------------------------|--------------|--------------|
| <b>Code</b>                   | <b>Title</b> | <b>Hours</b> |
| <b>Fifth Year - Fall Term</b> |              |              |

|          |                              |   |
|----------|------------------------------|---|
| IMM 6863 | Current Topics in Immunology | 1 |
|----------|------------------------------|---|

|                                 |              |              |
|---------------------------------|--------------|--------------|
| <b>Code</b>                     | <b>Title</b> | <b>Hours</b> |
| <b>Fifth Year - Winter Term</b> |              |              |

|                                 |              |              |
|---------------------------------|--------------|--------------|
| <b>Code</b>                     | <b>Title</b> | <b>Hours</b> |
| <b>Fifth Year - Spring Term</b> |              |              |

|          |                              |   |
|----------|------------------------------|---|
| IMM 6863 | Current Topics in Immunology | 1 |
|----------|------------------------------|---|

|          |  |   |
|----------|--|---|
| IMM 6865 | Regenerative T Cell Immunotherapy and Cellular Engineering | 3 |
|----------|--|---|