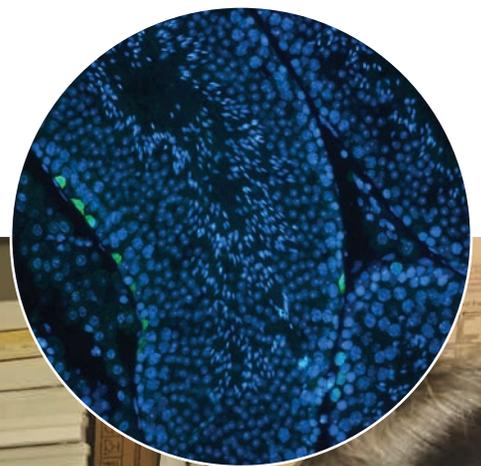
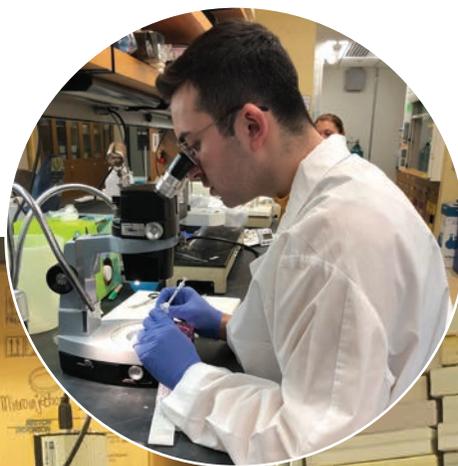
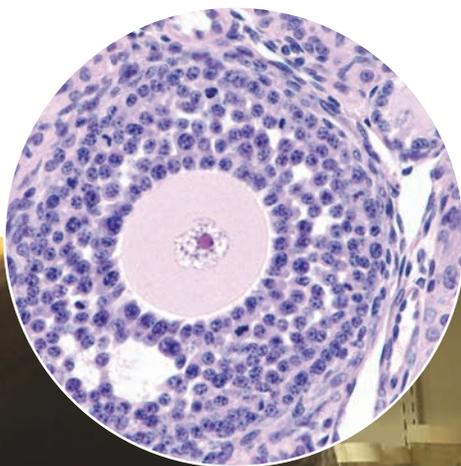


Northwestern

# MASTER OF SCIENCE IN REPRODUCTIVE SCIENCE AND MEDICINE (MS-RSM)

A Degree Program Focusing on Human Reproductive Health



The Master of Science in Reproductive Science and Medicine (MS-RSM) program focuses on human reproductive biology and medicine.

**Advance** your career with hands-on laboratory experience and state-of-the-art techniques in reproductive health and medicine.

**Collaborate** with clinical, basic, and translational scientific leaders in the field of human reproductive science and medicine.

**Prepare** for research, advanced training, and technical careers in the academic, clinical, and pharmaceutical sectors.



# Research is a cornerstone of the MS-RSM



## THESIS TRACK - 18 MONTHS

### RESEARCH

Thesis track students identify a thesis research mentor during their first quarter and begin research at the beginning of the second quarter which continues until the end of the program. During the course of study, the students meet with their thesis committee to ensure that milestones are met and progress towards the degree is satisfactory.

### THESIS PREPARATION AND DEFENSE

Students on the thesis track write and submit a final written thesis on their independent research project, which is defended to their committee.

## NON-THESIS TRACK - 9 MONTHS

### RESEARCH

Non-thesis track students obtain research training through enrollment in Reproductive Research Laboratory I and II which is specifically designed to lead students through a hypothesis driven, discovery based investigation of current research questions in reproductive science. Advised by the course instructor, students will conduct collaborative group projects during the second and third quarters.

### FINAL EXAMINATION

The final examination for non-thesis track students is a written examination that will test the students' cumulative knowledge of reproductive science and research. A standing committee will evaluate the students' examinations and provide a final recommendation to award the MS degree.

## Curriculum and Program of Study

The curriculum is rigorous and consists of focused reproductive science courses, laboratory instruction, professional development, and advanced topics courses. We offer **Thesis** and **Non-Thesis Tracks**. Both tracks earn Master of Science degrees from The Graduate School of Northwestern University. A basic understanding of physiology, biochemistry, cell and molecular biology are requirements for all MS-RSM core courses. Undergraduate Biology or Life Science degrees generally meet these requirements.

### Core Courses in Reproductive Science and Medicine

REPR\_SCI 405: Female Reproductive Physiology and Endocrinology

REPR\_SCI 406: Emerging Research in Reproductive Science and Medicine

REPR\_SCI 407: Male Reproductive Physiology and Endocrinology

REPR\_SCI 420: Human Reproductive Health and Disease

REPR\_SCI 425: Responsible Conduct of Research in Reproductive Science

REPR\_SCI 440: Reproductive Technologies Laboratory

REPR\_SCI 455: Research Proposals

REPR\_SCI 497: Career Planning and Assessment

### Elective Courses in Reproductive Science and Medicine

REPR\_SCI 415: Reproductive Endocrinology and Fertility Management

REPR\_SCI 430: Translational Topics in Fertility Preservation and Oncofertility

### Specific Courses (Non-Thesis Track)

REPR\_SCI 442: Reproductive Research I

REPR\_SCI 443: Reproductive Research II

### Specific Courses (Thesis Track)

REPR\_SCI 591: Thesis in Reproductive Science and Medicine

REPR\_SCI 595: Research in Reproductive Science and Medicine

### Thesis Track Concentrations

#### *Assisted Reproductive Technologies*

As the use of assisted reproductive technologies (ART) continues to increase across the globe, so too does the need for skilled workforce with expertise in reproductive science and medicine. Students in this concentration will pursue advanced coursework in areas such as embryology and andrology and will conduct thesis research with the Reproductive Endocrinology and Infertility Lab.

#### *Fertility Preservation*

Fertility preservation is the process of saving or protecting eggs, sperm, or reproductive tissue so that a person can use them to have biological children in the future. For instance, as cancer survival rates increase, many patients are faced with effects and complications of cancer treatment, including compromised reproductive function. Oncofertility researchers are working to provide information about the iatrogenic effects of drugs on reproductive organs and to develop strategies that will preserve and restore reproductive function. Students in this concentration will pursue advanced coursework and cutting edge research in fields such as fertility preservation, bioprosthesis, and oncofertility.

## Electives

Students may choose to take electives to complete their degree. These electives span several related disciplines and are offered through other graduate programs at Northwestern University: Life Sciences, Anthropology, Medical Humanities and Bioethics, Clinical Investigation, Gender Studies, Public Health, Biostatistics, and Epidemiology.

## Research

The Center for Reproductive Science (CRS) is committed to training the next generation of research, clinical, and thought leaders in our field. The CRS community brings together more than **200 faculty** and **100 trainees** across **18 departmental disciplines** to address reproductive science and medicine from multiple perspectives. Through increased knowledge about the fundamentals of reproduction, science fostered through the CRS will improve the health of men, women, and children across the reproductive lifespan and beyond.

Our CRS faculty and their research programs encompass male and female reproductive science and medicine from all angles. Our highly collaborative environment supports innovative science and clinical investigations that span a diverse array of disciplines.

- **Germ Cell Biology** – from sex determination, oogenesis, and spermatogenesis to meiosis, determinants of gamete quality, and fertility preservation
- **Reproductive Endocrinology, Ovarian Aging and Infertility** – from steroid and peptide hormones to infertility, Polycystic Ovarian Syndrome (PCOS), novel contraceptives, and Oncofertility
- **Reproductive Tract Biology** – from prostate and placenta function to fibroids, endometriosis, and infectious diseases
- **Bioengineering** – from reproductive prostheses to new methods to support in vitro gametogenesis and endocrine function
- **Chemistry and Structural Biology** – from identifying the inorganic zinc signature of life to understanding the crystal structures of critical endocrine hormones
- **Biophysics** – from visualizing the organization of reproductive structures to gaining insight into the micromechanical properties of chromosomes in the oocyte
- **Reproductive Medical Anthropology** – from developing assays that measure reproductive function to understanding hormonal profiles
- **Reproductive Science with Communication Sciences** – from creating new tools to teach reproductive biology to enhancing scientific communication across generations and different audiences



“I knew that this program would be a great step towards advancing my career in medicine; it is renowned for having the best researchers in the field of reproductive medicine, technology, and human reproductive health.”

—Monica Elabed, MS-RSM, Class of 2020

## The MS-RSM program will prepare you for a diverse set of careers.

### Alumni of our program keep the reproductive science and medicine pipeline strong through pursuit of:

- Advanced Training (MD, PhD, MSTP, PharmD, residency)
- Research Careers (laboratory management, research operations, bench science)
- Clinical Careers (embryology, andrology, clinical research, regulatory and compliance)
- Consulting Careers (industry, pharmaceuticals)

## Prospective Students, Application, and Admissions

The program and coursework are designed for students who want a highly focused reproductive science curriculum and research experience in preparation for careers in basic and clinical research laboratories in academia, healthcare, pharmaceutical, and biotechnology settings. The program is excellent preparation for clinical or research training, such as medical school, pharmacy school, and PhD training. Prospective applicants are encouraged to contact the program leadership if they have questions about their academic, clinical, or research backgrounds.

### Admission Requirements

- Bachelor or post-baccalaureate degree in Biology, Life Sciences, or related field from an accredited college or university. Applicants with nursing or medical degrees are also encouraged to apply.
- Undergraduate GPA of 3.0. Relevant coursework, as well as life and professional experiences, will be considered for applicants.
- International students are required to demonstrate proficient English language skills. Applicants must take either the Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) exams.
- International students who earned undergraduate or graduate degrees from institutions where English is the language of instruction are exempt from the TOEFL or IELTS.

### Application Process

Applications open in September and close the following spring. MS-RSM applicants are required to use the TGS online application. Information about the online application process and how to apply can be found on The Graduate School website ([www.tgs.northwestern.edu](http://www.tgs.northwestern.edu)).

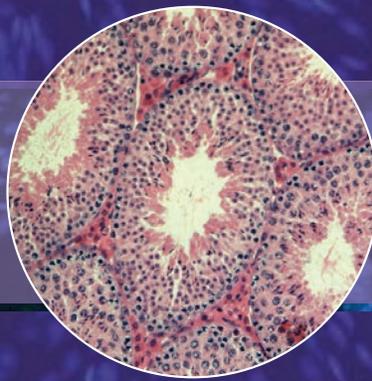
The MS-RSM program requires the following for a complete application and acceptance into the MS-RSM program:

- **Previous academic transcripts** – Upload unofficial copies of your previous academic transcripts.
- **Personal statement** – Describe your interest in reproductive science and medicine, why you want to join the MS-RSM, what you hope to gain from the program, and also what you hope to give to the program.
- **CV or resume** – Submit a current CV or resume. This information helps the program learn more about your extra-curricular activities and professional experiences that are not included in your transcript.
- **Letters of recommendation** – The MS-RSM program requires two letters of recommendation.

*The MS-RSM Admissions Committee reviews complete applications and invites qualified applicants to interview.*

The Center for Reproductive Science (CRS) serves as the administrative and intellectual hub of the MS-RSM program. The CRS is a long-standing academic and research center at Northwestern University that supports members through collaborative grants, serving to develop a community of reproductive scientists and provide member support through collaborative grants, networking events, data clubs, seminars, and trainee professional development activities. MS-RSM students will benefit from interacting with doctoral trainees, postdoctoral fellows, clinical fellows, and faculty in scientific and professional settings.

A majority of program courses and activities will take place on the Chicago campus of Northwestern University; however, the program is university-wide and select courses and thesis research opportunities are located on the Evanston campus.



**M Northwestern Medicine**<sup>®</sup>  
Feinberg School of Medicine



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For inquires about the MS-RSM Program, please email: [crs@northwestern.edu](mailto:crs@northwestern.edu).

Visit the Center for Reproductive Science website to learn more: [crs.northwestern.edu](http://crs.northwestern.edu)