The Program
The Clinical Molecular Genetics (CMG) Master’s of Science degree is designed to provide a rigorous graduate level education for clinical laboratory scientists and biologists in the field of molecular diagnostics. The CMG program is intended for laboratory science professionals who are already trained and competent in a medical laboratory or related discipline. Northern’s program places emphasis on developing students to be knowledgeable in the clinical applications of molecular genetic tests for acquired, inherited, and infectious diseases.

The CMG program is designed to provide flexibility for working professionals while also being suited for the dedicated graduate student. The CMG program consists of nine interactive web-based courses, a week long on-campus laboratory experience, and a flexible curriculum design that allows for either a research thesis or laboratory based capstone graduation project. The web-based courses allow students greater flexibility in learning but are no less rigorous than traditional classroom based courses. Initial courses provide the groundwork knowledge while subsequent courses develop the student’s ability to critically apply that knowledge and establish the foundation for a successful thesis or capstone project.

Immersive learning
Medical has entered an era in which molecular based clinical assays are increasingly used in the diagnosis, prognosis, and treatment and monitoring of disease. These tests are utilized in medical disciplines such as cancer pathology, infectious disease, genetic disorders, identity testing and pharmacogenomics. Northern’s curriculum is designed to provide the student with the knowledge needed to work in each of these subspecialties. Additionally, the program will challenge the student to develop the critical skills needed to develop, assess, implement, and evaluate molecular based assays in each of these areas.

Cool tools
NMU’s molecular lab is state-of-the-art. It’s comprised of 4 rooms: the reagent prep room, the wet lab, the pre-PCR room and the PCR room. The laboratory is designed to facilitate research while maintaining clinical laboratory standards.

The one week laboratory experience at Northern will provide students with an opportunity to enhance their hands on molecular biology skills. Lab projects will be tailored to the needs of individual students, and assignments will range in scope from learning basic techniques for less experienced students to initiating research projects for more advanced students. The diversity of skills faculty and students bring to the laboratory rotation will be leveraged to enhance the individual and the group experiences.

A good fit for students who like...

• Working in a laboratory setting
• Problem solving
• Scientific Research

Fantastic faculty
You’ll be taught by accomplished and competent faculty members who have working experience in the field and who hold professional memberships in organizations such as the Association for Molecular Pathology.

Uniquely Northern
Other universities may offer a similar program, but you won’t find anything like the emphasis on clinical application that you’ll get at Northern. Our program gives you a two-track option. A professional, project-based, track is modeled for working professionals – molecular assay development and validation projects can be completed at your place of employment under the tutelage of NMU faculty. A research, thesis-based, track will be appropriate if you’re seeking research positions in industry including pharmaceuticals, biotechnology, government, and academia.

Job outlook
Diagnostic molecular scientists require specialized training and the demand for these professionals is great. The U.S. Bureau of Labor Statistics projects a 13 percent increase in the need for clinical laboratory scientists between 2010 and 2020.

COURSES YOU WILL TAKE FOR THE MASTERS’ DEGREE

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>CLS 520</td>
<td>Principles of Clinical Molecular Genetics</td>
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<td>CLS 526</td>
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<td>CLS 536</td>
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<td>CLS 563</td>
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<td>CLS 580</td>
<td>Project in Clinical Molecular Genetics*</td>
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<tr>
<td>CLS 599</td>
<td>Thesis in Clinical Molecular Genetics*</td>
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*Students have the option to select either a thesis track or capstone graduation project.
Salary range

According to a 2012 Advance Laboratory salary survey for laboratory professionals, the average salary of laboratory professionals who specialize in Molecular Diagnostics/Genetics was $80,760. The Pacific region (AK, HI, CA, OR, WA) offers the highest salaries, followed by the Middle Atlantic (NJ, PA, NY) and New England (VT, NH, CT, MA, RI, ME).

Where you might work

- Hospitals
- Public health departments
- Reference laboratories
- State and federal law enforcement agencies
- Biotechnology industries
- Pharmaceutical companies
- Research institutions
- Academe

Northern at a glance

Northern Michigan University offers an exceptional academic experience in an amazing location on the shore of Lake Superior in the award-winning community of Marquette. With over 600 graduate students and 28 graduate programs, Northern is particularly known for its exceptional post-baccalaureate degrees that are offered on-campus, online or in hybrid formats. NMU’s faculty are focused on student success and the university prides itself in its affordable excellence.

Here to help

Please call the Graduate Admissions Office with any questions, or feel free to directly contact the department in which you are interested for program-specific inquiries. Submit your application at nmu.edu/graduatestudies.

We look forward to getting to know you and telling you about Northern.

Graduate Admissions
800-682-9797 • 906-227-2300
graduate@nmu.edu

Clinical Molecular Genetics
School of Clinical Sciences Department
Paul Mann, Assistant Professor
906-227-3738 • CLS@nmu.edu

nmu.edu/clinicallabsciences/genetics

NMU.EDU/CLINICALLABSCIENCES/GENETICS

Fearless in the Face of the Future

The future of healthcare will rely on genomic medicine for diagnosis, prognosis, monitoring the course of disease, and selecting optimal treatment strategies. Molecular diagnostics, or personalized medicine, is the fastest growing and most rapidly changing area in the clinical laboratory.

Clinical Molecular Genetics utilizes each person’s unique genetic signature to diagnose disease and make predictions about the likelihood of developing certain illnesses or conditions. Molecular diagnostic tests are used to assist clinicians to determine treatment options that are as individualized as the patients themselves, making the field of clinical genetics in high demand.

As a student in this program, you’ll be learning from faculty members with extensive professional experience working in laboratory settings around the world. Instructors take a “learner-centered” style into physical and virtual classrooms and labs, giving you the opportunity for active and cooperative learning to assist with gathering synthesizing and integrating information.