

MEDICAL LABORATORY SCIENCES, MASTER OF SCIENCE (M.S.), ADVANCED MASTER'S CONCENTRATION

Program goals

The Department of Medical Laboratory Sciences provides students with advanced theoretical and technical education and prepares them to assume roles as laboratory supervisors, educators and researchers. VCU will provide students with a superior, yet flexible, course of advanced study in medical laboratory sciences.

Student learning outcomes

1. Students will demonstrate the ability to research and evaluate laboratory issues within medical laboratory sciences, formulate a research question, design a research protocol and complete a research project.
2. Students will demonstrate appropriate professional conduct and leadership characteristics to include effective communication skills, ethical conduct and problem-solving abilities.

VCU Graduate Bulletin, VCU Graduate School and general academic policies and regulations for all graduate students in all graduate programs

The VCU Graduate Bulletin website documents the official admission and academic rules and regulations that govern graduate education for all graduate programs at the university. These policies are established by the graduate faculty of the university through their elected representatives to the University Graduate Council.

It is the responsibility of all graduate students, both on- and off-campus, to be familiar with the VCU Graduate Bulletin as well as the **Graduate School website** and academic regulations in individual school and department publications and on program websites. However, in all cases, the official policies and procedures of the University Graduate Council, as published on the VCU Graduate Bulletin and Graduate School websites, take precedence over individual program policies and guidelines.

Visit the [academic regulations section for additional information on academic regulations for graduate students](#).

Degree candidacy requirements

A graduate student admitted to a program or concentration requiring a final research project, work of art, thesis or dissertation, must qualify for continuing master's or doctoral status according to the degree candidacy requirements of the student's graduate program. Admission to degree candidacy, if applicable, is a formal statement by the graduate student's faculty regarding the student's academic achievements and the student's readiness to proceed to the final research phase of the degree program.

Graduate students and program directors should refer to the following degree candidacy policy as published in the VCU Graduate Bulletin for complete information and instructions.

Visit the [academic regulations section for additional information on degree candidacy requirements](#).

Graduation requirements

As graduate students approach the end of their academic programs and the final semester of matriculation, they must make formal application to graduate. No degrees will be conferred until the application to graduate has been finalized.

Graduate students and program directors should refer to the following graduation requirements as published in the Graduate Bulletin for a complete list of instructions and a graduation checklist.

Visit the [academic regulations section for additional information on graduation requirements](#).

Other information

All students will be given a handbook on policies and regulations at orientation.

Apply online today. (<https://www.vcu.edu/admissions/apply/graduate/>)

Admission requirements

| Degree: | Semester(s) of entry: | Deadline dates: | Test requirements: |
|---------|-----------------------|-----------------|--|
| M.S. | Fall | Jun 1 | Satisfactory scores on the GRE; minimum TOEFL of 600 (paper), 250 (computer) or 100 (IBT); or minimum IELTS score of 7.0 for international students whose native language is not exclusively English |
| | Spring | Nov 1 | |

Special requirements

- Applicants holding baccalaureate degrees in clinical laboratory sciences/medical technology and generalist certification by the Board of Certification of the American Society for Clinical Pathology are eligible for the advanced master's concentration.

In addition to the general admission requirements of the VCU Graduate School (<http://bulletin.vcu.edu/graduate/study/admission-graduate-study/admission-requirements/>), the general entrance requirements for the Master of Science in Clinical Laboratory Sciences for the advanced master's concentration are:

1. Baccalaureate degree from an accredited college or university with a major in clinical laboratory sciences (medical technology)
2. National certification as a medical laboratory scientist or equivalent level

3. Minimum undergraduate GPA of 3.0 on a 4.0 scale for at least the last two years of undergraduate work
4. Three letters of recommendation from employers or recent instructors addressing academic potential
5. Satisfactory interview

Degree requirements

In addition to the general VCU Graduate School graduation requirements (<http://bulletin.vcu.edu/academic-regs/grad/graduation-info/>), students in the advanced master's concentration are required to complete a minimum of 34 graduate credit hours to include 20 credits from core courses and 14 credits from discipline-specific courses.

In addition to the basic science requirement, each student may choose an area of secondary emphasis in biomedical research, education, management or business.

1. In lieu of 12 of the 14 credit hours of discipline-specific courses, students with a secondary emphasis in education, management or business may elect to focus on courses in those areas.
2. No more than 12 graduate credit hours in the area of the secondary emphasis may be applied toward the required curriculum minimum of 34 credits.

Full-time candidates require a minimum of two academic years to complete the program. Part-time students must complete all work requirements within six years. An interruption in registration in excess of one semester requires prior approval of the department.

In addition to these requirements, the department faculty will review continuation in the program if:

1. A student fails to achieve a minimum GPA of 3.0
2. A student receives a D or F in a course.
3. A student receives a grade of C on more than one CLLS graduate course or more than nine graduate credit hours (CLLS and non-CLLS credits)
4. A student receives a grade of U (unsatisfactory) on required graduate course work
5. A categorical master's student receives a grade less than a B in undergraduate course
6. A student fails to demonstrate appropriate professional responsibility

Curriculum requirements

| Course | Title | Hours |
|----------------------------------|--|-----------------------|
| Core courses (20 credits) | | |
| ALHP 594 | Health Education Practicum | 4 |
| BIOS 543 | Graduate Research Methods I | 3 |
| | or STAT 543 | Statistical Methods I |
| CLLS 661 | Research Methodology in Medical Laboratory Sciences | 3 |
| CLLS 690 | Clinical Laboratory Sciences Seminar (one-credit course taken three times) | 3 |
| CLLS 790 | Research in Clinical Laboratory Sciences | 4 |

| | | |
|----------|---|---|
| HADM 602 | Health System Organization, Financing and Performance | 3 |
|----------|---|---|

Discipline-specific courses (14 credits)

Select 14 credit hours from: ¹ 14

| | |
|---------------|--|
| BIOC 503 | Biochemistry, Cell and Molecular Biology |
| BIOC 504 | Biochemistry, Cell and Molecular Biology |
| BIOL/BNFO 540 | Fundamentals of Molecular Genetics |
| CHEM 633 | Mass Spectrometry |
| CLLS 601 | Theoretical Blood Banking |
| CLLS 602 | Molecular Diagnostics in Clinical Laboratory Sciences |
| CLLS 605 | Advanced Hematology |
| CLLS 608 | Laboratory Diagnosis of Infectious Diseases |
| CLLS 611 | Analytical Techniques for Clinical Mass Spectrometry |
| CLLS 612 | Mass Spectrometry Systems for Clinical Analyses |
| CLLS 613 | Mass Spectrometry Assay Development for In Vitro Diagnostics |
| CLLS 691 | Special Topics in Clinical Laboratory Sciences |
| CLLS 694 | Molecular Diagnostic Practicum I |
| CLLS 695 | Molecular Diagnostic Practicum II |
| FRSC 644 | Analytical Considerations in Forensic Toxicology |
| HGEN 501 | Introduction to Human Genetics |
| HGEN 502 | Advanced Human Genetics |
| MICR 505 | Immunobiology |
| MICR 515 | Principles of Molecular Microbiology |
| MICR 616 | Mechanisms of Viral and Parasite Pathogenesis |
| MICR 618 | Molecular Mechanisms of Microbial Pathogenesis |
| PATH 601 | General Pathology (Dentistry) |

Electives in business, education, management, marketing, health administration (secondary emphasis) ²

| | |
|----------|--|
| ACCT 507 | Fundamentals of Accounting |
| ADLT 601 | Adult Learning and Development |
| FIRE 520 | Financial Concepts of Management |
| GRAD 601 | The Academic Profession |
| GRAD 602 | Teaching and Learning in Higher Education |
| HADM 624 | Health Economics |
| HADM 638 | Administration of Long-term Care Facilities and Programs |
| INFO 661 | Information Systems for Managers |
| MGMT 656 | Best Practices in Leadership |
| MKTG 671 | Marketing Management |

Total Hours 34

Specific courses will depend on the individual student's choice of specialty. The basic science requirement may be distributed among approved courses listed in the VCU Graduate Bulletin. Other courses may be approved.

2

In lieu of 12 of the 14 credits in discipline-specific courses, students with a secondary emphasis in education, management or business may elect to focus on courses in those areas. No more than 12 graduate credit hours in the area of the secondary emphasis may be applied to the required curriculum minimum of 34 credits.

The minimum number of graduate credit hours required for this degree is 34.

Contact

Teresa S. Nadder, Ph.D., MLS(ASCP)^{CM}

Associate professor, chair and graduate program director

tsnadder@vcu.edu

(804) 828-9469

Program website: cls.chp.vcu.edu (<https://cls.chp.vcu.edu/>)