CLINICAL LABORATORY SCIENCES, MASTER OF SCIENCE (M.S.), ADVANCED MASTER’S CONCENTRATION

Program goals
The Department of Clinical Laboratory Sciences provides students with advanced theoretical and technical education and prepares them to assume roles as laboratory supervisors, educators and researchers.

Student learning outcomes
1. Demonstrated professional and leadership conduct
2. Demonstrated ability to research and evaluate laboratory issues

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 (http://www.graduate.vcu.edu) 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. (http://bulletin.vcu.edu/academic-reg/s/grad/candidacy)

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. (http://bulletin.vcu.edu/academic-reg/s/grad/candidacy)

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. (http://bulletin.vcu.edu/academic-reg/s/grad/graduation-info)

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

Apply online at graduate.admissions.vcu.edu (http://www.graduate.admissions.vcu.edu).

Admission requirements

<table>
<thead>
<tr>
<th>Degree:</th>
<th>Semester(s) of entry:</th>
<th>Deadline dates:</th>
<th>Test requirements:</th>
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</thead>
<tbody>
<tr>
<td>M.S.</td>
<td>Fall</td>
<td>Jun 1</td>
<td>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</td>
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</tbody>
</table>

|   | Spring | Nov 1 | Satisfactory scores on the GRE |

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 (M.S.) 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
Clinical Laboratory Sciences, Master of Science (M.S.), advanced master’s concentration

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:

1. A minimum of 34 graduate credit hours

2. A research study in the form of a thesis or project related to clinical laboratory sciences
   a. Students selecting the thesis option must complete a minimum of 15 graduate credit hours of discipline-specific sciences and six hours of research.
   b. Students selecting the project option must complete 18 graduate credit hours of discipline-specific sciences and four hours of research.

3. In addition to the basic science requirement, each student may choose an area of secondary emphasis in biomedical research, education, management or business.
   a. In lieu of 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.
   b. No more than 14 graduate credit hours in the area of the secondary emphasis may be applied toward the required curriculum minimum.

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.

Curriculum requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>BIOS 543</td>
<td>Graduate Research Methods I</td>
<td>3</td>
</tr>
<tr>
<td>or STAT 543</td>
<td>Statistical Methods I</td>
<td></td>
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<tr>
<td>CLLS 690</td>
<td>Clinical Laboratory Sciences Seminar (one-credit course taken three times)</td>
<td>3</td>
</tr>
<tr>
<td>CLLS 761</td>
<td>Research Methodology in Clinical Laboratory Sciences</td>
<td>3</td>
</tr>
<tr>
<td>CLLS 790</td>
<td>Research in Clinical Laboratory Sciences</td>
<td>4</td>
</tr>
</tbody>
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**Discipline-specific courses**

Select 18 credit hours of the following:

1. BIOL 503  Biochemistry, Cell and Molecular Biology
2. BIOL 504  Biochemistry, Cell and Molecular Biology
3. BIOL/BNFO 540  Fundamentals of Molecular Genetics
4. CHEM 633  Mass Spectrometry
5. CLLS 601  Theoretical Blood Banking
6. CLLS 602  Molecular Diagnostics in Clinical Laboratory Sciences
7. CLLS 605  Advanced Hematology
8. CLLS 608  Laboratory Hematology
9. FRSC/PHTX 644  Forensic Toxicology
10. HGEN 501/ BIOL 530  Introduction to Human Genetics
11. HGEN 502  Advanced Human Genetics
12. MICR 505  Immunobiology
13. MICR 515  Principles of Molecular Microbiology
14. MICR 616  Mechanisms of Viral and Parasite Pathogenesis
15. MICR 618  Molecular Mechanisms of Bacterial Pathogenesis
16. PATH 601  General Pathology (Dentistry)

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.

Other courses may be approved.

Total graduate credit hours required (minimum) 34

Graduate program director
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Program website: sahp.vcu.edu/departments/cls (http://www.sahp.vcu.edu/departments/cls)