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# MEDICAL LABORATORY SCIENCE (MLS) GRADUATE PROGRAM

University of North Dakota, Department of Pathology, Medical Laboratory Science Program, School of Medicine and Health Sciences
501 North Columbia Road, Stop 9037, Grand Forks, ND 58202-9037
Room 3131
701.777.2634, 701.777.2404(Fax)

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## ADJUNCT FACULTY

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<tr>
<th>Name</th>
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<tbody>
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<td>Elmer Koneman, MD</td>
<td>Microbiology</td>
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<td>Health Administration</td>
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<td>Hematology</td>
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INTRODUCTION

The faculty and staff would like to welcome you to the Master of Science (MS) Program in Medical Laboratory Science (MLS) at the University of North Dakota.

The Department of Pathology, Medical Laboratory Science Program offers a graduate program leading to the Master of Science Degree in Medical Laboratory Science (MLS), non-thesis option. The course of study enhances the student’s knowledge and skills in several major categorical areas of medical laboratory science. The curriculum is designed to prepare students for careers as administrative laboratory directors, clinical laboratory consultants, technical supervisors or laboratory educators. Students are required to attend a one-week laboratory course (MLS 524) within the first 18 months of enrollment and a one-week (MLS 515) capstone course within the last 18 months of enrollment on campus.

The purpose of the MS MLS handbook is to provide you with general information concerning the MLS graduate program at The University of North Dakota. We encourage you to read through this information to better acquaint yourself with curriculum and policies of the program. We will discuss the basic process of earning your graduate program degree in this handbook, along with specific program policies and procedures.

Please review the UND Graduate School Handbook [http://graduateschool.und.edu/_files/docs/2011-masters-handbook.pdf](http://graduateschool.und.edu/_files/docs/2011-masters-handbook.pdf) for graduate school policies and procedures and other important information. The graduate school website is: [http://graduateschool.und.edu/](http://graduateschool.und.edu/). This website should be used to locate graduate school forms and procedures related to your official progress throughout the degree.

MISSION STATEMENT

The mission of the Master of Science Medical Laboratory Science (MS, MLS) program at the University of North Dakota is to generate and disseminate an advanced scholarly curriculum through distance and on-campus courses to baccalaureate degreed, certified clinical laboratory science/medical laboratory science professionals throughout the state, nation and world. The curriculum is designed to prepare graduates for leadership roles in education, consulting, and healthcare administration.

PROGRAM GOALS

Upon completion of the program the student will be able to:

Learning Goal 1:
Work independently utilizing critical thinking and problem solving skills to effectively communicate the responsibilities of the clinical laboratory in patient care management to all participants of the healthcare team. Specifically, the student will be able to:

Objective 1.1 Analyze and apply research studies and professional literature for applicability to laboratory practices.

Objective 1.2 Demonstrate an ability to apply laboratory based theories and principles to patient care.

Objective 1.3 Create effective interactions with members of the healthcare team.

Learning Goal 2:
Apply theories of laboratory management including financial, quality, and personnel management.

Specifically, the student will be able to:

Objective 2.1 Evaluate laboratory financial management processes and applications.

Objective 2.2 Examine quality management processes and applications.

Objective 2.3 Plan, develop and organize laboratory services while effectively addressing costs.

Objective 2.4 Examine personnel management processes and applications.

Learning Goal 3:
Demonstrate knowledge of advanced scholarly curriculum that encompasses the scope of practice in medical laboratory science.

Specifically, the student will be able to:

Objective 3.1 Analyze advanced theories, principles, and laboratory skills in each discipline of the medical laboratory science profession.

Objective 3.2 Assess methodologies and interpretation of data within the medical laboratory science scope of practice.

Learning Goal 4:
Demonstrate effective communication skills, both oral and written, across multiple topic or disciplines.

Specifically, the student will be able to:

Objective 4.1 Demonstrate scholarly writing skills through the successful completion of papers, case studies, written evaluations, and comprehensive examinations.

Objective 4.2 Demonstrate oral communication skills by successfully creating and presenting scholarly work to faculty and students of the School of Medicine and Health Sciences.
ADMISSION

Admission to the Graduate Program at the University of North Dakota:

Follow the General Graduate School Admissions Requirements:
http://graduateschool.und.edu/graduate-students/new/admissions-domestic.cfm
http://und.edu/academics/registrar/catalog-current.cfm.

The Graduate Records Exam is not required for entrance into the Medical Laboratory Science Program.

Applicants who are seeking admission to Graduate School must meet all of the minimum general graduate school admission requirements identified in the links above.

In addition, the prospective students must fulfill the requirements for admission to the graduate program in Medical Laboratory Science (MLS).
1. B.A. or B.S. degree and successful completion of the CLS (NCA), MT(ASCP) or MLS(ASCP) certification examinations. (Include proof of certificate with graduate school application.)
2. Curriculum grade point average (GPA) of at least 3.0 based on the junior and senior years of undergraduate work (based on A=4.0).
3. Satisfy the Graduate School's English Language Proficiency requirements as published in the Graduate Catalog: http://und.edu/academics/registrar/catalog-current.cfm
4. Prior experience in a medical laboratory is recommended.

PROGRAM REQUIREMENTS

Non-Thesis Option:
The Master of Science in Medical Laboratory Science is considered a non-thesis option graduate program. Advanced scholarly work will include the independent study and the comprehensive exams.

Course Requirements:
A minimum of 32 semester credits is required for the degree. The total credits include two credits in the major for an independent study for which the student registers for the course number 997. The program may include just the major; the major, and a minor; or a major and a cognate area. The major must include at least 29 credits for the major department and a minor or cognate area must include at least nine credits. A minor is difficult to acquire unless the student is taking credits on the University of North Dakota campus. A cognate requires nine semester credits, but courses can be taken in more than one department. The total number of graduate credits that can be transferred into UND is eight semester credits.
Transfer Requirements:
A limited amount of the graduate work completed at a regionally accredited North American institution prior to or after matriculation in the Graduate School at UND, may be applied toward a graduate degree at The University of North Dakota. Graduate work is considered for transfer only on an individual basis and only after the student has completed satisfactory work in residence at UND. Those transfer credits, approved by the student’s advisor and the Dean of the Grade School, are included in the program of study for the UND graduate degree and only those transfer credits will be recorded on the UND transcript.

The basic purpose of the transfer policies is to ensure that transferred work is of comparable content, level, timelines, and quality to that which would be taken at UND and included on the program of study for the degree. The following policies are generally applicable to the acceptance of the graduate work for transfer to UND:
- The work must have been taken at an accredited North American institution.
- The student must have been enrolled as a graduate student.
- The work must have received graduate credit at the institution where it was earned.
- The student must have earned a grade of B or better.
- The work must be less than seven years old at the time the UND degree is awarded with the exception of work that was part of a completed prerequisite degree.

The amount of transfer credit that will be accepted toward the master’s degree is one-fourth, eight semester credits, of the total credits hours required for the degree.

GRADUATE TEACHING ASSISTANTSHIPS

Graduate Teaching Assistantships (GTA) are university appointments that provide financial assistance to students qualified for teaching service in the department in which they take the major part of their graduate work. The purpose of these assistantships is to facilitate students working toward their degree while gaining teaching experience in the field of the degree. Appointments may be for one-fourth or one-half of service. Most assistantships are half-time assistantships which require 15 to 20 hour of work per week and permit the student to carry a minimum of six and a maximum of ten credits of graduate work each semester. A quarter-time assistant requires seven and a half to ten hours per week and must carry eight to 12 credits per semester.

The tuition is waived by the University. Students are responsible for all other fees. A health insurance plan is available.

International graduate assistants who are non-native English speaking individuals are required to take the TSE (Test of Spoken English) or the SPEAK test and achieve a score of 50 before an assistantship may be offered. If a graduate assistant has taken the internet-based TOEFL (IBT), ask the Graduate School what score is required.
To inquire about graduate teaching assistantships within the MLS program contact Ruth Paur, Graduate Program Director, via e-mail ruth.paur@med.und.edu. Limited positions are available for students wanting to experience clinical laboratory science teaching opportunities on-campus at The University of North Dakota.

**ADVISOR APPOINTMENT**

Upon acceptance into the program the student will be assigned an advisor by the MS MLS program director. The student will able to view their advisor’s information on the graduate school online system, and the UND campus connection system. This information will include the advisor’s name, email address and telephone number.

**STUDENT AND FACULTY RESPONSIBILITY**

It is the responsibility of the student to become informed and to observe all regulations and procedures required by the university, graduate catalog and the program in which the student is enrolled. The student is responsible for reading the graduate catalog, all contracts for employment, the terms and conditions of any awards and correspondence from various offices of the University. The student is responsible for knowing his/her academic standing and grade point average. While the Graduate School attempts to notify students regarding any problems in the student’s progress toward a degree, the student alone is responsible for maintaining satisfactory academic standing and progress. The Graduate School expects all students and faculty to be aware of its policies and procedures. Ignorance of a rule does not constitute basis for waiving that rule.

**GETTING STARTED IN THE MLS PROGRAM (GRADUATE LEVEL)**

1. **Admission:** Upon admission to the University of North Dakota, [http://graduateschool.und.edu/](http://graduateschool.und.edu/) and acceptance into the program you will be eligible to enroll (register) in course work within the MLS graduate program. At the time of application to the UND graduate program through the Graduate School you will be notified of your EMPL ID# (sometimes called Student ID#). The EMPL ID# serves as your unique identification number. Keep this number handy as you will need it often while enrolled as a graduate student and it must be listed on all forms submitted to the graduate school and it is used for course registration.

2. **Advisor:** Upon acceptance into the program the student will be assigned an advisor by the MS MLS program director. You will be able to view your advisor’s information on the graduate school online system and this information will include the advisor’s name, email address and telephone number.
3. **UND E-Mail:** Upon admission to UND you will be issued a UND e-mail account. Beginning December 16, 2011, a student’s e-mail will be set up as shown in this example: jane.doe@my.und.edu. This E-mail account will remain active while you are enrolled as a student at UND. To access this account go to http://und.edu/current-students.cfm. IMPORTANT: To make sure your UND e-mail account is active in all things UND. The UND MLS program requests that each student also log on to the campus connection system https://studentadmin.connectnd.us/psp/NDCSPRD/EMPLOYEE/HRMS/h/?tab=GUEST go to their preferences and select it as your preferred email account. You will want to check this email often for official UND and MLS program correspondence. This is the only email account we wish to use in contacting you so please check it often and use it to contact us.

4. **Semester Course Offerings/Course Registration:** Four to six weeks prior to the start of the fall and spring semesters, the semester course offerings with brief descriptions and instructions will be posted on the MLS website. This online announcement serves to inform you of upcoming semester offerings and registration information needed, textbook requirements, etc. Any questions concerning registration should be directed to the MLS administrative assistant, Mary Beth at marybeth.mcgurran@med.und.edu.

5. **Course Registration:** To register for course work you will need to access the university online enrollment system (Connect ND/Campus Connection http://und.edu/academics/registrar/campus-connection.cfm). The system is used for enrollment and also individual student status. Additional directions for accessing Campus Connection are available on the UND website. Campus connection is also to be utilized for viewing final semester grades. Use the information in #4 above each semester to register on campus connection for your courses. A “tip sheet” for campus connection utilization can be found at: http://und.edu/academics/registrar/cc-tip-sheets-faculty-staff.cfm

6. **Blackboard:** The platform used for the online course classroom is through the system “Blackboard”. In order to activate your Blackboard username and password you must activate your UND email account. Once activated your username and password are the same as your UND issued email. If you experience difficulty accessing Blackboard, contact Janna Schill, janna.schill@med.und.edu for assistance.

7. **Final Semester Grades:** Official final semester grades should always be viewed on the UND Campus Connection system and not on Blackboard.

8. **Computer Requirements:** The majority of the curriculum in the graduate program is delivered in an online format. The MLS program does not require students to purchase a personal or laptop computer while enrolled in the program. Since this program is delivered in an online format, you will need to have the means to readily
access course materials via the internet learning systems. All questions on this topic should be directed to Janna Schill, janna.schill@med.und.edu.
FLOW/PROGRESSION CHART

SEQUENCE FOR COMPLETION OF MASTER'S DEGREE
(Non-Thesis Option)

1. Admission
2. Advisor Assignment (Assigned by MLS Program Director)
3. Submit Program of Study
4. Submit Topic Proposal/Independent Study
5. Advancement to Candidacy
6. Apply to Graduate
7. Graduate School Checks Student's Record
8. Comprehensive Exam
9. Submit Final Copy of Independent Study to Advisor
10. Final Report to Graduate School Completed by MLS/Advisor/Program Director
CHECKLIST
This is designed as a tool for you to follow your progress within the MS MLS program.

___ **Apply for admission** to the UND MLS Graduate School as a MS in MLS degree seeking student.

___ **Advisor**: Upon acceptance into the program the student will be assigned an advisor by the MS MLS program director.

___ **Review course offering information** “Rotation Schedule” from the MLS website: [http://medicine.nodak.edu/cls](http://medicine.nodak.edu/cls)

___ **Register** for your fall or spring semester courses by first viewing “Schedule of Graduate Classes” on the MLS website: [http://medicine.nodak.edu/cls](http://medicine.nodak.edu/cls). The information listed will include the class # used to register for your courses, instructor, textbook(s) required, when courses begin on Blackboard, etc. The schedule also explains the UND billing process and other useful information on a semester by semester basis within our program. **For fall semester courses the information will be available in late July and for spring semester courses the information will be available in late November. Summer courses are not offered.** Course registration occurs utilizing the campus connection system: [http://und.edu/academics/registrar/campus-connection.cfm](http://und.edu/academics/registrar/campus-connection.cfm). This link: [http://und.edu/academics/registrar/cc-tip-sheets-faculty-staff.cfm](http://und.edu/academics/registrar/cc-tip-sheets-faculty-staff.cfm) serves as a “tip sheet” for assistance.

___ **Complete the MLS program advising sheet included** at the end of this handbook. This is created by the MLS program to allow you to make a tentative sketch of your program of study and the projected semesters you are intending to enroll in specific courses. You will want to view the MLS rotation schedule to on our website to help in your planning. It is for your purpose only and does not need to be submitted. Or, you can use the official program of study form from the Graduate School for this purpose. **Note**: No official coursework is completed during the summer semester but feel free to visit with your advisor concerning preparation for directed studies, seminar and independent project if you are thinking about beginning them ahead of time.

___ **Discuss your plans** with your advisor to complete the requirement of two credits of MLS 591 Directed Studies. The completion of the two credit requirement can be accomplished two different ways. A more complete explanation can be found in this handbook. You will want to decide what your plan entails before you submit your Program of Study form to the Graduate School.

___ **Submit your program of study** (recommended: second semester) to your advisor. Additional information on program of study can be found in this handbook and in the graduate school handbook at the graduate school website.
Note: Your program of study must be approved at least one semester before you are advanced to candidacy.

___ Submit a Topic Proposal (MLS 997 Independent Study) for approval (as early as possible, but no later than the semester before you plan to graduate). Your proposal of a topic for an independent study must be approved by your advisor and the Dean of The Graduate School before you can become a candidate for your degree. You cannot graduate in the same semester or summer session in which you become a candidate and therefore you must receive approval on your proposal prior to your final semester. The Graduate school will send approval or rejection copies to the student, advisor and department. You cannot register in this course before your proposal has been approved.

___ Discuss ideas with your advisor
___ Submit IRB form for approval if necessary
___ Submit form to advisor

See more specific information under Independent Study included in this handbook or review this subject in the Graduate School handbook.

___ Advancement to Candidacy: You must be advanced to candidacy the semester before you plan to graduate. When you have received approval of your program of study, and your topic proposal, and you have completed at least 12 credits with a 3.0 GPA, you will be advanced to candidacy.

___ Apply to Graduate: You must submit the form by the published deadline for the term in which you plan to graduate. This is an online form and you will be asked to log in to complete it. To complete the application for graduation visit http://graduateschool.und.edu/graduate-students/current/forms.cfm

___ Complete Your Comprehensive Exams: Check with the MLS program and/or your advisor for this requirement. Detailed information concerning the comprehensive exam process is found later in this handbook and includes a MLS form, “Request for Comprehensive Exams” located near the end of this handbook.

___ Submit the final copy of your Independent Study (MLS 997) to your advisor. Check with your advisor for the date they want to receive it so that he/she will have sufficient time to read/grade before the Final Report on Candidate form is required to be completed and submitted to the Graduate School.

___ The form “Final Report on Candidate” is submitted to the Graduate School by the published deadline for the term in which you plan to graduate.
  o The MLS Program and your academic advisor will complete and submit this report for the student by the published deadline.
HELFPFUL HINTS

___ Always, Always, Always include your UND Student ID# (sometimes called EMPL ID#) on all forms where it is required.

___ Be sure to monitor your UND e-mail account on a weekly basis throughout the degree seeking process. The UND email account assigned to you will be the form of electronic communication used to contact you by the University, MLS faculty and staff. VERY IMPORTANT: Make sure you have set it up correctly in the UND system Campus Connection by choosing it as your preferred email in your preferences.

___ Always update your personal information on UND campus connection (address change, etc). Campus Connection is the official UND connection used to locate you.

___ The graduate school requires a student to be registered in a course the semester they have applied for graduation. If you have completed all of your course requirements in previous semesters you would register for MLS 996 Continuing Enrollment. There is a $100 course fee MLS 996 Continuing Enrollment which would be the tuition charged for that semester. Plan your program of study so that you have a course left to register for your last semester. An example would be that you would register for MLS 997 Independent Study the semester you are graduating.

___ Schedule an in-person advisement session with your advisor when you are on campus for either of the two on campus courses (MLS 524 or MLS 515. The student might wish to use the form on page 34 to plan for their advisement session. It is helpful for the student to bring this form with them to the advisement session. This will also help the student to complete their program of study form, if they have not done so already.

___ Always remember to view your official semester grades on the UND system Campus Connection. The grade entered on Campus Connection will be the official grade placed on your official UND transcript. The Blackboard program is used to teach and administer the course online and is not the place to view your FINAL official semester grade.

___ Graduate School forms are located on the graduate school website: [http://www.und.edu/dept/grad/html/forms.html](http://www.und.edu/dept/grad/html/forms.html)

___ The official Graduate School Handbook is available online: [http://graduateschool.und.edu/graduate-students/current/handbooks-and-guides.cfm](http://graduateschool.und.edu/graduate-students/current/handbooks-and-guides.cfm)

___ Graduate School website: [http://www.und.edu/dept/grad/](http://www.und.edu/dept/grad/)
### CURRICULUM REQUIREMENTS

**UNIVERSITY OF NORTH DAKOTA**  
**MASTER OF SCIENCE MEDICAL LABORATORY SCIENCE (MLS)**

<table>
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<tr>
<th>Course</th>
<th>Credits</th>
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<tr>
<td>MLS 501</td>
<td>Quality Assurance in the Clinical Laboratory</td>
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<td>MLS 502</td>
<td>Erythrocytes in Health and Disease</td>
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<tr>
<td>MLS 503</td>
<td>Leukocytes in Health and Disease</td>
</tr>
<tr>
<td>MLS 505</td>
<td>Financial Management of the Clinical Laboratory</td>
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<tr>
<td>MLS 506</td>
<td>Clinical Chemistry</td>
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<tr>
<td>MLS 507</td>
<td>Clinical Immunohematology</td>
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<tr>
<td>MLS 513</td>
<td>Advanced Clinical Immunology for the Laboratory Professional</td>
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<tr>
<td>MLS 515*</td>
<td>Capstone Course in Clinical Laboratory Science</td>
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<td>MLS 518</td>
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<td>MLS 521</td>
<td>Seminar</td>
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<td>MLS 522</td>
<td>Clinical Bacteriology</td>
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<td>MLS 523</td>
<td>Clinical Virology, Mycology, and Parasitology</td>
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<td>MLS 524*</td>
<td>Current Trends and Issues for Laboratory Professionals</td>
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<td>MLS 591</td>
<td>Directed Studies</td>
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<td>MLS 997</td>
<td>Independent Study</td>
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<th>Electives Available</th>
<th>Credits</th>
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<td>MLS 508</td>
<td>Leadership and Conflict Resolution in Health Science</td>
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<tr>
<td>MLS 509</td>
<td>Laboratory Education Methodologies</td>
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<tr>
<td>MLS 514</td>
<td>Computer Applications in Clinical Laboratory Science</td>
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<tr>
<td>MLS 516</td>
<td>Special Topics (in choosing a special topic contact advisor)</td>
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<tr>
<td>MLS 517</td>
<td>Health Care Administration for the Clinical Lab Professional</td>
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*One week on campus course, not available by distance learning*
ROTATION SCHEDULE OF MLS GRADUATE COURSE OFFERINGS

(Located on the UND MLS Website, Updated Annually, Subject to Change)
http://pathology.med.und.nodak.edu/cls/PDF/MSSchedule10to13.pdf

COURSE DESCRIPTIONS

MLS 501. Quality Assurance in the Clinical Laboratory. 2 credits. The course will consist of lectures, readings and case studies of quality assurance for the clinical laboratory.

MLS 502. Erythrocytes in Health and Disease. 2 credits. This course is the study of the erythrocyte. It includes discussions of the normal red cells with emphasis on molecular structure, molecular function, production and regulation. The course continues with studies of the molecular basis of the diseases of the erythrocyte. The role of the laboratory in the diagnosis of these conditions is stressed and current research tools are included.

MLS 503. Leukocytes in Health and Disease. 2 credits. This course presents the normal and abnormal structure and function of each of the peripheral blood leukocytes. Emphasis is on the molecular level, light and electron microscopic evaluation and the role of the laboratory in diagnosis of each condition.

MLS 505. Financial Management of the Clinical Laboratory. 2 credits. This course presents an overview for financial management of clinical laboratories. Students learn several basic financial operation concepts, how to evaluate productivity and how to manage salaries, wages and supply inventories for maximum cost containment. Students learn how to plan for capital expenditures, set laboratory fee rates and plan and implement a budget.

MLS 506. Clinical Chemistry. 2 credits. This course addresses the complex and difficult problems that have arisen as a byproduct of the effort to make effective use of the resources of analytical chemistry in support of the practice of medicine.

MLS 507. Clinical Immunohematology. 2 credits. A detailed study of the blood groups of man and laboratory aspects of blood banking with special reference to theoretical and clinical applications.

MLS 508. Leadership and Conflict Resolution in the Health Sciences. 2 credits. The leadership portion will be discussion focused on developing personal and interpersonal leadership skills and on directing at the managerial and organization level through principle centered leadership. Some specific areas to be covered will be presentations and discussion on principle centered leadership, the PS Paradigm, improving listening skills, leading in healthcare organizations, missioning and co-missioning with
organizations, and how to help organizations to become more embracive and adaptive to change. The conflict resolution portion will be an introduction to diagnosing and mediating conflict with discussions and examples of the traditional mediation process as well as transformative mediation.

**MLS 509. Laboratory Education Methodologies.** 2 credits. This course will include information concerning the creation of instructional and evaluative material for teaching clinical laboratory science. Classroom management techniques and the peer review process of instructors will also be included.

**MLS 513. Advanced Clinical Immunology for Laboratory Professionals.** 2 credits. Prerequisites: Consent of instructor. Broad array of topics which will stretch from introductory level immunology to the current research and applications of that research in the modern clinical laboratory.

**MLS 514. Computer Applications in Clinical Laboratory Science (MLS).** 2 credits. This course is designed to provide students with basic knowledge of computer usage in Health Sciences. It will include hardware configuration, software applications in health care, and on-line searching and periodicals. Instruction will be primarily on-line and require specific computer requirements.

**MLS 515. Capstone Course in Clinical Laboratory Science.** 2 credits. Prerequisites: Completion of at least 20 credits in the Medical Laboratory Science Master of Science Program. The Capstone Course in Medical Laboratory Science (MLS) provides the student with a number of tools that they can use in their leadership roles in the MLS profession. The student will learn basic facilitation skills for leading meetings and solving problems in the work place.

**MLS 516. Special Topics.** 1 to 4 credits. Topical courses in laboratory medicine organized on a semester by semester basis.

**MLS 517. Health Administration for the Clinical Laboratory Professional.** 2 credits. Overview of the organization and financing of health care services including an examination of the philosophical, political and economic foundations underlying the U.S. health care system. Students also will be introduced to a myriad of health care administration resources and case studies, including decision tools for adopting new technology and quality improvement.

**MLS 518. Molecular Diagnostics.** 2 credits. An overview of specific molecular biology application in the laboratory and a discussion of cell biology, DNA chemistry, genetics, nucleic acid extraction and modification, blotting, polymerase chain reaction, and probes in relation to diagnostic investigations.

**MLS 521. Seminar.** 1 credit. Student presentation of a clinical laboratory science topic.

MLS 523. Clinical Virology, Mycology, and Parasitology. 2 credits. An advanced study of the laboratory diagnosis of viral, fungal, and parasitic diseases and the antimicrobial agents to counteract them.

MLS 524. Current Trends and Issues for Laboratory Professionals. 2 credits. Through group discussion and presentation, current trends in the field of clinical laboratory science will be explored.

MLS 591. Directed Study in Laboratory Medicine. 1 credit. Designed to meet the needs of individual students in laboratory medicine. Primarily for graduate students.

MLS 997. Independent Study. 2 credits. The independent study is designed to require the student independently to investigate a topic related to the major field of study.

**LEAVE OF ABSENCE AND READMISSION**

Degree seeking graduate students who wish to take a leave of absence from their program must notify their graduate program and the graduate school by submission of a “request for leave of absence from graduate study” before they plan to leave. Students will be required to obtain department approval prior to submitting the form to the graduate school. Complete this form: [http://graduateschool.und.edu/_files/docs/leave-of-absence-4-11.pdf](http://graduateschool.und.edu/_files/docs/leave-of-absence-4-11.pdf) and fax (701.777.2404) it to the MLS program. The MLS program will gather the necessary signatures of the program director, etc and forward it on to the graduate school for the student.

Students who do not submit a leave of absence will be required to submit a “readmission application for the graduate school” form: [http://graduateschool.und.edu/_files/docs/readmission-4-11.pdf](http://graduateschool.und.edu/_files/docs/readmission-4-11.pdf) and pay a readmission application fee of $35.00. Applications for readmission will be reviewed and approved by the program and the graduate school dean. If you need to process this form fax (701.777.2404) it to the MLS program first for the director’s signature and the MLS program will forward it on to the graduate school for the student.

It is much easier and less costly to request the leave of absence so keep this process in mind if you need to take a leave.
INCOMPLETE GRADE POLICY
(UND OFFICE OF THE REGISTRAR)

http://und.edu/academics/registrar/_files/docs/catalogs/catalog-2011-2013.pdf#44 see page 44.

It is expected that students will complete all requirements for a course during the time frame of the course. For reasons beyond a student's control, and upon request by the student or on behalf of the student, an incomplete grade may be assigned by the instructor when there is reasonable certainty the student will successfully complete the course without retaking it. The mark “I,” Incomplete, shall be assigned only to the student who has been in attendance and has done satisfactory work up to a time within four weeks of the close of the semester, including the examination period, and whose work is incomplete for reasons satisfactory to his or her instructor. Incomplete grades are entered on the final grade sheet. Incomplete grades convert to grades of “F” if a grade change is not submitted by the instructor to the Office of the Registrar by the specific due date.

Option 1:
The final grade must be submitted by the instructor within two calendar months of the original course completion date or by an earlier date specified on the incomplete form by the instructor. (Example: If original course took place in the spring or summer semester, the incomplete is due two calendar months into the following fall semester.)

Option 2:
An incomplete may be extended for up to twelve calendar months by submitting a petition to the Office of the Registrar. This petition requires approval by the instructor of the course and the Dean of the Graduate School before it is submitted.

An incomplete grade must be changed by twelve calendar months from the ending date of the class. An “I” may be converted as indicated above but cannot be expunged from the record. Students may not register in courses in which they currently hold grades of incomplete, except for courses that allow repeated enrollment. A student will not be allowed to graduate with an unconverted incomplete grade on the academic record.

Note: It is the student’s responsibility to keep the instructor informed of their progress concerning any incomplete grade that was assigned to them so that the incomplete grade can be removed and a grade assigned by the instructor according to the above policy deadlines. If this does not occur the grade will automatically convert to a grade of F by the Office of the Registrar.

It is the responsibility of the student to be knowledgeable about the status of an incomplete grade and to complete the specified work required to remove the incomplete grade by the specified deadline.
DIRECTED STUDIES INFORMATION (MLS 591)

Two credits of directed studies (MLS 591) are required for the Masters of Science in MLS degree. The purpose of directed studies is to assist the student in pursuing scholarly information or completing a scholarly project that is of a particular interest. Routinely, a direct studies project is for one graduate credit so two, one credit courses will be registered for in different semesters. Large scale/scope projects can be assigned two credits upon approval by the academic advisor prior to enrollment of the course.

MLS 591 Directed Studies is a separate course from your independent project (MLS 997 Independent Study) which is a much larger scale accomplishment than the directed studies. An example of the depth of an independent project may be the creation of an entire course to teach including the: syllabus, lectures, quizzes, study guides, projects, laboratory experiences, and exams. The size of a directed study would be the creation of the ten laboratory experiences or participating in the case studies course for one credit. For details concerning MLS 997 independent Study, see the respective section within this handbook and the course description listed earlier in this handbook.

The two credit requirement of MLS 591 Directed Studies is usually fulfilled by the student participating in at least one case studies course (MLS 591 Directed Studies: Case Study in MLS), and on optional specific topic, although any combination is acceptable. (Example: two case study courses or two optional topics.) The optional specific topic would be determined between the student and their advisor. Individuals have created: employee training modules (MLS 591 Directed Studies: Employee Training), competency testing in micro (MLS 591 Directed Studies: Competency testing in Microbiology), a study of particular financial aspect of the laboratory (MLS 591 Directed Studies: Inventory Control in the Medical Laboratory) etc. You may have a particular interest in the development of a particular project or an investigation into a specific topic. If you wish to choose this option, contact your advisor for further discussion.

MLS 591 Directed Studies: Case Study in MLS is available both fall and spring semesters. If a student wishes to work on an optional case study to fulfill one credit during the summer, contact your advisor to discuss the topic. The graduate faculty is unavailable during the summer semester, but the student may work independently during the summer months and have a great deal of work completed before fall semester. The student would then register for the course fall semester using a class number specific to their optional case study and complete the coursework. The student should be aware that they must work closely with their advisor if the student wishes to work on an optional case study.

Grading:
Successful completion of the course will be determined by the instructor of the course. Specific grading criteria will be determined by the instructor and available during the second week of the semester.
SEMINAR INFORMATION

The purpose of the seminar is to increase professional level skills in creating and presenting information related to patient health and disease with the correlation to the medical laboratory.

Students will review a student seminar presentation during the first few weeks of Seminar in the semester in which they are enrolled. Specific instructions will be given to the student when they are enrolled in the course the semester of presentation by the instructor, Janna Schill.

Generally, the seminar should be 45-50 minutes in length and presented using PowerPoint or a similar professional presentation platform. Included in the presentation should be objectives, reference information, and audience handouts. It will be presented through a distance format.

For further information contact Janna Schill, janna.schill@med.und.edu, the instructor of the course, and/or your advisor.

PROGRAM OF STUDY

Your program of study is a listing of the courses and credits you need to take in order to meet the requirements of your degree. In the main graduate school handbook it states that the program of study should be completed in the second semester of coursework.

It is the student’s responsibility to know what the course and credit requirements are for your program. Consult with your advisor when preparing your program of study.

Instructions:  http://graduateschool.und.edu/_files/docs/pos-instructions.pdf

Form:  (This form must be word processed.)
http://graduateschool.und.edu/_files/docs/masters-pos-4-11.pdf

Change to Program of Study:
This form is required to be submitted if you change any course in your previously approved program of study.

Signatures:
For any of the above forms your advisor and the graduate program director must sign your program of study or any changes you make to it. If you are not on campus you may fax the form to the MLS office (701-777-2404) and we will gather the signatures and forward the designated form to the graduate school on your behalf.
TOPIC PROPOSAL/INDEPENDENT STUDY INFORMATION
(MLS 997 INDEPENDENT STUDY)

(Time frame: As soon as possible, but not later than the semester prior to your final semester)

YOU CANNOT REGISTER FOR THIS COURSE UNTIL YOUR INDEPENDENT STUDY IS APPROVED.

Your proposal of a topic for an independent study must be approved by your advisor and the Dean of The Graduate School before you can become a candidate for your degree. You cannot graduate in the same semester or summer session in which you become a candidate and therefore you must receive approval on your proposal prior to your final semester. The Graduate school will send notification of approval to the student, advisor and department.

Plan Your Topic Proposal:
The Independent study is designed to require the student independently to investigate a topic related to the major field of study. The study need not be an original contribution to knowledge but may be a presentation, analysis, and discussion of information and ideas already in the literature of the field. The requirement is to ensure a student can investigate a topic and organize a scholarly report on the investigation.

Approval is affected by the student’s completion of a form entitled, “Topic Proposal of Independent Study.” This form is available, with instructions, on the Graduate School website. [http://graduateschool.und.edu/_files/docs/topic-proposal-4-11.pdf](http://graduateschool.und.edu/_files/docs/topic-proposal-4-11.pdf)

Student’s must prepare and secure their advisor's approval. Upon approval by the advisor, the MLS program will forward the form to the Dean of the graduate school in order to secure the Dean’s approval. Upon approval the student is eligible to register in the course.

Creating the Proposal:
The independent project must be a large scholarly project. The comprehensive exams and your independent project are submitted in place of the thesis as a culmination to your graduate program.

Types of Projects:
The student must discuss their ideas with their advisor, who will assist them in judging whether the project must be narrowed or expanded in scope to reflect the scholarly level demanded of an independent project. The advisor will work with the student for any scheduled reviews during the process of creating the project. An advisor may ask for assistance from another UND graduate instructor for help with a particular topic in the laboratory; specifically, hematology, chemistry, immunohematology, microbiology, etc.

Examples of previous independent projects include:
- Creating an entire college course, including syllabus, objectives, lectures, study guides, quizzes, and exams.
- Creating an emergency medical response system for a county.
- Creating 40 lab experiences for students in college laboratory training including: lists of equipment, supplies needed, and student worksheets, set-up information needed for the instructors for each lab.
- Creating a minimum of a 35 page single space paper, with at least 35 peer reviewed journals for the references on a topic related to lab medicine (research paper).
- Validation of an analyzer, test procedure etc with all supporting data, graphs and written description of the process.
- Two weeks working in a research lab with a 35 page paper describing the research and information learned.
- Twenty training modules for students in a lab experience completing performance competency testing at a clinical site.

Grading: (An example of the MLS grading format can be viewed at the end this handbook)
The different types of projects will lead to different types of grading criteria. If your advisor does not feel that the independent project submission merits at least a grade of C, the advisor will submit the project to the MLS Graduate Faculty Committee for review and recommendations for the student. The advisor will then forward these recommendations to the student and graduation will be delayed until a suitable submission for an independent project has been determined. An example of the grading of an independent project research paper is included at the end of the handbook. Generally, the grading will be in the following categories:
A. The project is creative and is not just a compilation of another’s work. It is well organized and presented in a professional manner and represents scholarly depth and work. Only minor change would improve the project.
B. The project is missing one of the criteria listed for earning a grade of A and major changes would be needed to improve the project.
C. The project is missing more than one of the criteria listed for earning a grade of A and major changes would be needed to be at a grade of A level.
D. The project evaluated at a grade of C level and is not considered adequate and must be presented to the MLS graduate committee for consensus on a rewrite with probable delay of graduation.

Human Subject Involvement:
If the student will be involving any human subjects in the independent project, including surveys or laboratory material, it is advised that the student reads the information concerning human subjects located within the Graduate School handbook. If human subjects are involved, paperwork must be submitted and approved by the Institutional Review Board at the University of North Dakota BEFORE the project proposal form can be forwarded to the Graduate School and before the project begins. The IRB approval process frequently takes at least four weeks, even with an expedited level form. More specific information can be found at: http://und.edu/research/research-economic-development/institutional-review-board/forms.cfm
COMPREHENSIVE EXAM INFORMATION

Eligibility:
A student must be advanced to candidacy before they are eligible to write their comprehensive exams. To be advanced to candidacy the student must have a program of study and topic proposal (for MLS 997 Independent Study) approved by the student’s advisor and the dean of the graduate school. The advancement to candidacy must be accomplished at least one semester before the student wishes to graduate.

Comprehensive Exams are meant to illustrate your depth of understanding in Medical Laboratory Science. The exams are not meant to be punitive, but rather a platform to exhibit the knowledge the student has acquired.

The student will need to answer eight questions on eight different areas of laboratory medicine. There are six core topics (Section A) and two questions that the student and advisor will select the topic from (Section B). All questions must be from courses listed on the student’s program of study.

SECTION A: The six core topics are:
- MLS 501 Quality Assurance in the Clinical Laboratory
  -and/or-
  MLS 505 Financial Management of the Clinical Laboratory
- MLS 502 Erythrocytes in Health & Disease
  -and/or-
  MLS 503 Leukocytes in Health & Disease
- MLS 506 Clinical Chemistry
- MLS 507 Clinical Immunohematology
- MLS 513 Advanced Clinical Immunology for Laboratory Professionals
  -and/or-
  MLS 518 Molecular Diagnostics
- MLS 522 Clinical Bacteriology
  (or MLS 504 Medical Microbiology if you are under the old program which ended Dec 2009)

SECTION B: Two can then be chosen from the following topics:
- MLS 501 Quality Assurance in the Clinical Laboratory
- MLS 502 Erythrocytes in Health and Disease
- MLS 503 Leukocytes in Health and Disease
- MLS 505 Financial Management of the Clinical Laboratory
- MLS 509 Laboratory Education Methodologies
- MLS 513 Advanced Clinical Immunology for Laboratory Professionals
- MLS 517 Health Care Administration for the Clinical Laboratory Professional
- MLS 518 Molecular Diagnostics
- MLS 523 Clinical Virology, Mycology and Parasitology

Additional Information:
See the Graduate School Handbook:
Discuss your comprehensive exams with your advisor at least one semester before you wish to write the exams. At that time, you and your advisor will decide on the eight topics. The advisor will email the 8 topics to the MLS administrative assistant and she will email the student concerning how to obtain the “what to study” for each question. The administrative assistant will let the student know which questions of those chosen she has a “what to study” handout for (she will mail the handout to the student) and which of those questions chosen the student needs to personally contact the instructor and ask for “what to study” instructions. This occurs because some instructors choose to have the student contact them directly and some instructors have handouts to be provided to the student listing “what to study” to use as a guide to prepare.

**Question Format:**
It is expected that each question will take approximately one and a half hours to complete. Only questions completed using a computer will be accepted (no hand written responses). Different instructors have different styles of questions. The instructor will narrow down the scope of the question so that the preparation for each topic can be limited to a reasonable level. The student will select a proctor and the questions will be mailed to the proctor in a packet with a cover letter giving specific instructions. It is expected that the student completes the questions under the supervision of the proctor and will not have books, notes, programmable calculators, cell phones or electronic listening devices with them during the exams. There is an example proctor letter in the Appendix of this manual.

**Timing:**
To begin the process of receiving your comprehensive exam packet complete the form (Comprehensive Exam Request) found in the Appendix of this handbook or at: [http://pathology.med.und.nodak.edu/MLS/PDF/MSCompForm.pdf](http://pathology.med.und.nodak.edu/MLS/PDF/MSCompForm.pdf) Mail or fax it as indicated on the form. Upon receipt, the MLS office will gather your questions and along with your cover letter mail the packet to your proctor. An example of a cover letter can be found in the Appendix of this handbook. If the student still has a course left to complete, all of the eight will be included in the packet and seven of the eight questions can be completed, with the last one following closer to the projected graduation date. It is expected that once the comprehensive exam writing begins, the student will write all of the questions (or at least seven of the eight) within a two week period. Often the student will write one or two questions a day. Some students choose to write two in a day and then skip a day for review of the prepared responses. It is up to the student and the student’s proctor to organize the scheduling. If the student chooses to write the exams within four weeks of the expected graduation date, any remediation that may be required may delay graduation.

**Notification of Passing an Exam Question:**
After grading of a question has occurred the instructor of the course or the MLS administrative assistant will email the student (using the student’s UND-Email) the results of the comprehensive exam.
Remediation:
If an instructor does not feel that the question was answered in a scholarly fashion, remediation of the question will occur. The instructor will advise the student concerning the shortcomings of the response and determine the level of the remediation. There are two levels of remediation.

- **Level I Remediation:**
  Level I remediation occurs if the student does not complete all portions of the question, but exhibits depth of understanding in the portions that were answered. At this level of remediation, the instructor will advise the student on what they are missing and request an open-book rewrite.

- **Level II Remediation:**
  Level II Remediation occurs if the student does not exhibit the depth of understanding consistently throughout their response. For a Level II Remediation, the faculty will have the option of assigning the same question or creating a new question for the student to prepare. A Level II Remediation will not be open-book, but be completed with a proctor and the same restrictions as the original question.

**CANDIDACY FOR THE DEGREE**

**Time Frame:** No later than the semester before you plan to graduate.

There are a number of steps that must be fulfilled before a student can be advanced to candidacy. There is no separate form to complete to be advanced to candidacy but rather there are specific requirements that, when met, automatically advanced the student to candidacy.

Admission of a student to the Graduate School as a Degree Student in Approved Status implies only that the student has met the minimal entrance requirements and will be permitted to take graduate courses which normally will lead to a degree. The student has not been admitted as a candidate for a degree. Advancement to candidacy is a formal procedure and can be granted only after the student has met certain academic requirements. To become a candidate for Master of Science (non-thesis option), the following requirements must be met in approximately the following sequence:

1. Completion of the equivalent of one full-time semester (12 semester credits).
2. A GPA of at least 3.00 for all work attempted.
3. Appointment of Faculty Advisor:
   The advisor, who must be a member of the Graduate Faculty, will be appointed by the dean upon a written recommendation from the MLS graduate program director (Ruth Paur). The advisor is responsible to the program/department and to the Graduate School for the supervision of the student’s work.
4. Program of Study:
   Students must submit a Program of Study for Graduate School approval which will have been developed in consultation with the advisor and signed by the MLS graduate program director. If a minor is declared, the program must also be signed.
by the chairperson of the minor department. The Program of Study should be
developed early in the second semester and submitted to the Graduate School
through the MLS student’s advisor and program director.

5. Topic Proposal of Independent Study:
Student must obtain approval of a topic for the independent study. The advisor
approves the Topic Proposal of Independent Study, and the form is submitted to the
Graduate School to become part of the record. The topic proposal must be filed prior
to the semester or session in which the student expects to graduate.

6. Final Examinations:
Those advanced to candidacy for non-thesis master’s degrees must pass written
final comprehensive examinations which must cover the major field but may, at the
advisor’s discretion, draw upon or cover the supporting areas. Such examinations
generally will be given and evaluated by the major department, but the results will be
certified to the Graduate School by the advisor and the MLS graduate program
director on the form Final Report on Candidate by the deadline specified in the
Academic Calendar. The appropriate comprehensive examination(s) will be
arranged by the advisor and administered by the department no earlier than the
semester proceeding the semester in which the candidate intends to graduate.
Candidates may not take the final comprehensive examination(s) unless they have
been advanced to candidacy for the degree, and are in satisfactory academic
standing. Students and their advisors will be notified in writing of the advancement to
candidacy. The student must complete all requirements for advancement to
candidacy prior to the semester in which they plan to graduate.

APPLICATION FOR GRADUATION

A student MUST apply for graduation. After you have been advanced to candidacy
the graduate school will contact you concerning the application for graduation.
There is a deadline that must be met to complete this application. The specific date
deadline changes each semester. It occurs in approximately the third week after
each semester begins. You can find the dates/deadline each semester at:
http://graduateschool.und.edu/dates-and-deadlines.cfm#sept
The application is available at: https://webdevelopment.und.edu/graduationonline/
This form requires the student to log on to complete it. It will be sent directly to the
graduate school electronically when completed with a copy going to the student’s
advisor automatically.

FINAL REPORT ON CANDIDATE

The final report must be submitted to the Graduate School by the published deadline in
which the student plans to graduate. THE MLS PROGRAM WILL PROCESS THIS
FINAL FORM REPORT ON THE STUDENT BY THE PUBLISHED DEADLINE. A delay
in submitting comprehensive exams and/or the independent project to within four weeks
of the date this form is due could delay the student’s graduation until the following semester.

By completing this final report the MLS graduate program director and your advisor are reporting to the Graduate School the results of your comprehensive examinations and confirming that your Independent Study Report has been completed by you, the student, and accepted by your advisor. After receiving this report the Graduate School will authorize your degree if all conditions have been met as required.

GRADUATE SCHOOL PETITIONS

In the case of a missed deadline, registration error, incomplete grade, etc., a student has the right to petition the Dean of the Graduate School in order to correct the problem. http://graduateschool.und.edu/_files/docs/gs-petition-4-11.pdf

The student must state clearly what is being petitioned. If the petition involves a specific course, the course number must be listed. Each petition form lists the signature required for each action.

Following is a brief list of potential reasons to file a petition:

- Adding a course after the deadline
- Enrolling in more credits than allowed
- File for graduation after the deadline
- Enrolling in 996 Continuing Enrollment beyond the number of semesters allowed
- Repeating a course with a grade of C or better

Additional information on each of these requirements to file a petition can be found in the graduate school handbook located online at: http://graduateschool.und.edu/_files/docs/2011-masters-handbook.pdf

GRADUATE SCHOOL FORMS

Always use the current forms available for download
Located at the Graduate School Website:
http://graduateschool.und.edu/graduate-students/current/forms.cfm

FREQUENTLY ASKED QUESTIONS (FAQ)

1. How do I register for a course?
   To register for a course you need the class number. We do not publish our class numbers on the UND system. To view them go to our website: http://pathology.med.und.nodak.edu/MLS/index.cfm and choose graduate program from the left hand side. There you will see a tab for our courses. At that tab you will find an announcement which will give you the class number to use to register for the course, the textbook info, instructor,
what date the course will begin on blackboard, if a proctor is needed for the course, etc. This announcement will be available by August 1 for fall semester and December 1 for spring semester. MLS courses are not offered during the summer semester. Additional information is included in this announcement that will be helpful to you for the semester. Using this information you would then proceed to the UND campus connection system (http://und.edu/academics/registrar/campus-connection.cfm) and register for your courses. You would go directly to enroll and insert the class number. Hint: Do not go to search to locate the class number to choose it because it cannot be viewed – always go directly to enroll and put the class number in. The rotation schedule of courses (on our MLS website) http://pathology.med.und.nodak.edu/cls/PDF/MSSchedule10to13.pdf is a tool that will be helpful to you in planning your course registration.

2. I need signatures of my advisor, graduate program director, etc., on a required form. How can I obtain them since I am not on campus at this time?
If you would fax the form to the MLS office (701-777-2404), or email it to marybeth.mcgurran@med.und.edu, the MLS administrative assistant will gather the required signatures for you and forward the form on to its’ destination.

3. Do I need to be continually enrolled? What if I want to take a semester off?
No, you don’t need to be continually enrolled but you must complete a form http://graduateschool.und.edu/_files/docs/leave-of-absence-4-11.pdf in order to not register in a course for a semester (other than summer). See the section Leave of Absence and Readmission of this handbook for more information or view this section in the graduate school’s office handbook.

4. What do I enroll in if I have finished all my courses and the only thing left I have to do is officially graduate?
The Graduate School requires a student to be registered in a course the semester they have applied for graduation. If you have completed all of your course requirements in previous semesters you would register for MLS 996 Continuing Enrollment. There is a $100 course fee MLS 996 Continuing Enrollment which would be the tuition charged for that semester. Plan your program of study so that you have a course left to register for your last semester. An example would be that you would register for MLS 997 Independent Study the semester you are graduating.

5. Do I need to finish my independent project (MLS) 997) in one semester?
No, it is the only course that can be continued beyond one semester without acquiring an incomplete grade. If not completed in the semester you registered for it you will receive a SP grade. The SP grade will be removed and a letter grade assigned when the project is complete.

6. How do I change my program of study?
After consulting with your advisor, complete the form “Changes to a Program of Study” which can be found online at the graduate school website under forms. Fax the form to the MLS office (701-777-2404), or email it to marybeth.mcgurran@med.und.edu. The MLS administrative assistant will gather the required signatures for you and forward the form on to its’ destination. Do not submit a new program of study unless there are major changes.

7. What happens if I cannot complete a course on time?
If you can’t complete a course on time because of something beyond your control, you may request to receive an incomplete grade. See incomplete section earlier in this handbook. Contact your instructor ASAP. Also see additional information in this handbook (Incomplete Policy).
8. What happens if my GPA falls below a 3.0?
Your record will be reviewed at the graduate school level. Students having completed 12 credits or more will be placed on academic probation for one semester; students having accumulated fewer than 12 credit hours will be placed on academic probation until either a) the GPA is raised to at least 3.0 or (b) 12 credit hours are accumulated, whichever occurs first. If, at the end of the probationary period, the GPA is still less than 3.0, the student will be dismissed.

9. How do I drop a course after the deadline?
You must complete an Administrative Procedures petition. This form can be found on the Graduate School or Office of the Registrar’s website under forms for students. [http://und.edu/academics/registrar/forms.cfm](http://und.edu/academics/registrar/forms.cfm) The form, with signatures and recommendations for approval or disapproval, must be received in the graduate school office for the graduate dean’s signatures. Explain clearly why you are requesting to drop after the deadline. The UND administrative procedures committee will meet on these petitions throughout the semester, and you will be notified by letter of their decision. (You may complete the form and fax it to the MLS program at 701-777-2404 and the MLS office will gather the necessary signatures and forward it to the graduate school for the Dean’s signature.)

10. How do I change my name?
There is a form at this link: [http://und.edu/academics/registrar/forms.cfm](http://und.edu/academics/registrar/forms.cfm) and this is the form: [http://und.edu/academics/registrar/_files/docs/forms/name-change.pdf](http://und.edu/academics/registrar/_files/docs/forms/name-change.pdf). Complete it and fax it to the UND registrar at 701-777-2969.

11. How do I apply to graduate?
You need to be advanced to candidacy the semester before you graduate. See additional information in this handbook and/or view applying for graduation in the UND graduate handbook [http://graduateschool.und.edu/graduate-students/current/handbooks-and-guides.cfm](http://graduateschool.und.edu/graduate-students/current/handbooks-and-guides.cfm)
It is the student’s responsibility to apply for graduation by the deadline set by the UND Office of the Registrar. The application to graduate is found under student forms on the graduate school website: [http://graduateschool.und.edu/graduate-students/current/forms.cfm](http://graduateschool.und.edu/graduate-students/current/forms.cfm)

12. Is there a time limit on finishing my degree?
Yes, graduate courses more than seven years old are considered obsolete and may not be counted to fulfill course requirement for an advanced degree program. Program of study more than seven years old are obsolete. Obsolete UND graduate courses may be revalidated and may be counted toward an advanced degree on the recommendation of the student’s faculty advisor and the dean of the graduate school. There is a form to complete to begin the revalidation process and the form is located at the graduate school website. [http://graduateschool.und.edu/_files/docs/revalidation-4-11.pdf](http://graduateschool.und.edu/_files/docs/revalidation-4-11.pdf)

13. I do not remember who was assigned as my advisor. How do I find out who it is?
You would have received a “Student Status Sheet” from the graduate school when you were admitted which included your advisor information. You can also view your advisor information on UND Campus Connection using your student ID#. [http://www.und.edu/dept/registrar/campusconnection/index.htm](http://www.und.edu/dept/registrar/campusconnection/index.htm)

14. I realize that two credits are required to fulfill my MLS 591 Directed Studies requirement. I am confused on how to fulfill this requirement.
Many students have questions on this requirement. We have tried to explain it further and more in depth in this handbook. If you still have a question, contact your advisor or the MLS program’s administrative assistant.

15. Where do I view my official semester grades?
Your final official semester grades should always be viewed on the UND campus connection system. You should check it after each semester. The grade entered on Campus Connection will be the official grade placed on your official UND transcript. Blackboard is the program we use to teach and administer our courses online but is not the official site to view your final semester grades.

16. Are housing accommodations provided when I attend MLS 515 Capstone and 524 Current Trends and Issues for Laboratory Professionals?
No. Housing accommodations are the responsibility of the student. We are able to extend to you the State of ND hotel/motel rate available at the time and you can make your own reservation. Additional information will be made available to you in a separate email when you are registered in the course and closer to the time the course is scheduled. There also is a UND shuttle bus that the student can ride to and from the hotel or close to it.

17. Are there any “Tip Sheets” to help with the UND Campus Connection system?
http://und.edu/academics/registrar/cc-tip-sheets-faculty-staff.cfm

18. See “Helpful Hints” early in this handbook for additional helpful information.

If you think of any other FAQ that would be beneficial to post in this section please email them to the MLS administrative assistant, Mary Beth McGurran at marybeth.mcgurran@med.und.edu. We would be most happy to include them.
MLS 997 INDEPENDENT PROJECT
SCHOLARLY/RESEARCH PAPER DIRECTIONS

Directions: Have the topic and topic areas approved by your advisor and the graduate school. Research the topic; the number of journals found depends on the project. See Independent Study Information in the Graduate Handbook. This project must be word processed: single spaced (save a tree). Check with your advisor as to their writing style preferred for citing references and how references should appear in text (example: using superscripts). Provide copies of journal articles if not obtainable from PubMed UND Medical Library. Length of paper: Depends on project: Consult advisor and view Independent Study Information in the Graduate Handbook.

MLS 997 – INDEPENDENT PROJECT EVALUATION

Name ______________________________________________________    Date__________________________
Topic_________________________________________________________________________________________

WRITTEN PAPER (worth 100 points):

Part A. Format of the Paper (a-c):     Total = 25 points

a. Organization of paper, e.g., title, subtitles, intro, plan of development, summary, etc.
   _____ Suggest you use subtitles
   _____ Add an introduction, and/or _____ Add a summary
   _____ Work on organization, plan of development

b. Grammar (third person, no spelling errors, good sentence structure, simplicity)
   _____ Use third person for professional papers
   _____ Work on spelling, use spell check, plus have a good speller read it - peer, or writing center or _____
   _____ Work on grammar, sentence structure, read paper aloud, have a peer read it, or writing center
   _____ Work on simplicity, uncomplicated sentences, read paper aloud, have a peer read it, or writing center

   _____ Work on flow of paper, ease of reading, read paper aloud, have a peer read it, or writing center
   _____ Work on clarity and conciseness, read paper aloud, have a peer read it, or writing center
   _____ Other comments

Part B: Content: 50 points

a. Content (informative, useful valid information, not outdated, adequately covered)
   _____ Work on valid information, not from lay journals or .com info
   _____ Work on depth of material covered or understanding of material
   _____ Work on getting more updated information, current journals
   _____ Work on relating it to clinical laboratory work; _____ Table format for a summary of usable information for a clinical laboratory.
   _____ Other comments

Part C: Bibliography: 25 points

a. Bibliography (valid, recent references, written correctly in bibliography and cited correctly in text, 10 or more references)
   _____ Work on valid references, ones from a medical journal or text source and not outdated
   _____ Copies of references not provided or only in abstract form, or not available online or in library
   _____ References not written in AMA, Vancouver form
   _____ References not cited by superscripts in text, see example paper in library and directions
   _____ No references
   _____ Other comments

TOTAL POINTS   ______________

The following scale is used in grading the scientific paper:
Part A and C, Part B 2X this rating
25      =Excellent   Total Points/Grade
22.5  =Very Good  A  90-100
20      =Acceptable B  80-89
18      =Could use improvement C  70-79
12 * =Very poor-definitely needs to be redone D  60-69
   <69  F
### Graduate
**Master of Science**

**MLS Transcript Review Worksheet**

Date of Review: __________________

Name:____________________________________________ Student ID#____________________

UND E-Mail: ______________________________________ Phone #:________________________

Address: __________________________________________________________________________

This worksheet is prepared only as a tool to aid in your understanding of the University's requirements for the Master's Degree in MLS. A minimum of 32 semester credits are required.

Check box if course is completed:

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Semester Planned</th>
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<tbody>
<tr>
<td>☐ MLS 501 Quality Assurance in the Clinical Laboratory</td>
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<td>☐ MLS 502 Erythrocytes in Health and Disease</td>
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<td>☐ MLS 503 Leukocytes in Health and Disease</td>
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<td>☐ MLS 505 Financial Management of the Clinical Lab.</td>
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<td>☐ MLS 506 Clinical Chemistry</td>
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<td>☐ MLS 507 Clinical Immunohematology</td>
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<td>☐ MLS 513 Advanced Clinical Immunology</td>
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<td>☐ MLS 515* Capstone</td>
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<td>☐ MLS 518 Molecular Diagnosis</td>
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<td>☐ MLS 521 Seminar</td>
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<td>☐ MLS 522 Clinical Bacteriology</td>
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<tr>
<td>☐ MLS 523 Clinical Virology, Mycology, and Parasitology</td>
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<tr>
<td>☐ MLS 524* Current Trends and Issues for Laboratory Science</td>
<td>*</td>
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<td>☐ MLS 591 Directed Studies (1of2)</td>
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<td>☐ MLS 591 Directed Studies (2of2)</td>
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<tr>
<td>☐ MLS 997 Independent Study</td>
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</table>

**Elective Courses Available**

| MLS 508 Leadership & Conflict Resolution in Health Science |                  |
| MLS 509 Education Methodologies in Laboratory Science     |                  |
| MLS 514 Computer Applications in Clinical Laboratory Science |              |
| MLS 516 Special Topics (ST) (in choosing a ST contact advisor) |          |
| MLS 517 Health Care Administration for the Clinical Lab Professional |     |

TOTAL CREDITS..................................................................................................... _______

*One week course on campus, not available by Distance Learning.

☐ Program of Study submitted

☐ Independent Project Proposal Submitted

(When the program of study and Independent Project Proposal are submitted to the graduate school the student will advanced to candidacy.)

Title:

Project Completion Date:

Estimated Graduation Date:

Comments:

THIS FORM WOULD BE GOOD TO BRING WITH YOU FOR AN ADVISEMENT SESSION IF YOU HAVE ONE SCHEDULED WHEN YOU ARE ON CAMPUS FOR A COURSE.
COMPREHENSIVE EXAM REQUEST FORM

By submitting this form you are requesting that your comprehensive exam packet be mailed to your proctor. Please fax this form (701-777-2404) or mail it to the MLS office and allow 5 working days for processing and mailing to occur from the MLS office. If you have any questions contact the MLS Admin Assistant at 701-777-2634 or marybeth.mcgurran@med.und.edu

Student’s Name: _______________________________________ ID#__________________

Student’s UND email address:_____________________________________________________

Advanced to Candidacy: ___Yes ___No
Anticipated graduation semester: ____Fall (Dec) ____Spring (May) ___Summer (Aug)

I understand that the completed comprehensive exam packet must be received back in the MLS office for grading by the following date for the graduation semester listed below:
Fall:  Due November 15
Spring:  Due April 1
Summer: Due June 15

I would like to begin writing my comprehensive exams on: ____________________________

PROCTOR INFORMATION:
Name: ________________________________________________________________

Position Title:___________________________________________________________

Address:_______________________________________________________________
 (Include name of business establishment such as hospital, clinic, library, etc)

Email: ________________________________________________________________

Telephone:____________________________   Fax#:________________________

The eight topics to be included in my comprehensive exams are:

<table>
<thead>
<tr>
<th>Course #</th>
<th>Topic Name</th>
<th>Instructor</th>
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<tbody>
<tr>
<td>EXAMPLE: MLS 503</td>
<td>Leukocytes in Health &amp; Disease</td>
<td>Coleman</td>
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<td>1.</td>
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</table>
EXAMPLE OF COMPREHENSIVE EXAM COVER LETTER TO PROCTOR

Date

Proctor's Name
Proctor's Address

Dear Proctor's Name:

Thank you for agreeing to serve as the proctor to administer Student’s Name comprehensive exam. The eight exam questions for you to administer are enclosed. The student will be in contact with you concerning the specific dates he/she would like to complete the exam questions. Some guidelines to follow are listed below:

- Please provide an exam environment that is quiet, comfortable, and computer accessible. A computer is required to complete each exam question and we ask that the answer be printed out and stapled to the corresponding exam question. The computer used cannot be the student’s own laptop computer. The student should not have their cell phone with them at this time.
- Stapled to each of the eight questions is a proctor form. As the proctor, please complete each form at the time the student begins and ends an exam question. The student should receive the question from you and return it to you directly upon completion. Sign the form in the area designated for the proctor's signature.
- Each exam question should be expected to be completed in a 1½-2 hour time period - if it takes longer that is also acceptable.
- An exam cannot be taken home.
- Textbooks or other materials cannot be used to assist in answering the questions. The student's cell phone is not allowed to be with the student at the time exams are being written.
- When the exams have been completed please mail them back all together using the enclosed self-addressed envelope. The student will need to supply postage so that you can personally mail the exam packet back to us for grading or if you elect to have the student mail the exam packet please sign your name across the sealed flap of the envelope.
- The complete packet of questions should be completed within two weeks of writing the first exam question and at the very latest needs to be received in our office no later than November 15, 2011. If there is a reason why it won’t be completed within two weeks of writing the first exam please email the MLS office, marybeth.mcgurran@med.und.edu.

Again, thank you for your assistance. If you have any questions, please contact the MLS administrative assistant, Mary Beth McGurran, at marybeth.mcgurran@med.und.edu or 701-777-2634.

Sincerely,

Ruth Paur, PhD
Medical Laboratory Science Program Director

RAP/mbm
Enclosures
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