

program or a 4-year Bachelor of Science degree program in Respiratory Care. Admission requirements vary among professional respiratory care programs. Not all professional programs accept transfer credits. Therefore, as soon as possible, interested students should contact the programs of choice for the most current prerequisite requirements. A list of accredited respiratory care programs may be obtained from the American Association for Respiratory Care, 11030 Ables Lane, Dallas, TX 75229 (phone 972-243-2272 and ask for the Education Department) or explore the web at http://www.aarc.org/patient_resources/schools.html.

Loma Linda University: Interested students may complete the prerequisites for Loma Linda University's Respiratory Care Education Program while attending Andrews University. Check with the above listed coordinator for the required course work. The Pre-LLU/RC student may then apply and transfer to LLU through its selective admissions process as a second-year student in their program.

ALLIED HEALTH

Halenz Hall, Room 326
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<http://www.andrews.edu/ALHE>

Faculty

Marcia A. Kilsby, *Chair, CLS Program Director*
Albert W. McMullen
Melphine M. Ponniah
Richard D. Show, *Graduate Program Coordinator*

The Department of Allied Health prepares students who are committed to preserving and protecting the dignity of life and death. They promote values and attitudes consistent with the Seventh-day Adventist Christian lifestyle. They strive to instill in students a life-long personal quest for individual growth and fulfillment and for continual excellence in health-care practice.

Clinical Laboratory Science (Medical Technology)

The degree program includes three years of undergraduate (pre-clinical) studies plus one year (3 semesters) of clinical (professional) education.

Pre-clinical Program. The first three years of undergraduate study include General Education, cognate science, and pre-clinical degree requirements. Program options feature directed elective course work selected in consultation with the faculty advisor according to the student's career goals and interests.

Clinical (Professional) Program. The year of clinical studies is comprised of lectures and student laboratories on the Berrien Springs campus and a clinical practicum at an affiliated hospital or clinical laboratory site.

Clinical Experience (Practica). Students work side-by-side with practicing professionals in patient health care during the final portion of the clinical year. Andrews University maintains a

February 15th prior to their anticipated clinical-study year.

Admission requires an overall GPA of 2.50. In the admissions process, the GPAs for the cognate science courses and clinical laboratory science content courses are computed together. This combined GPA must be a minimum of 2.50. Should applications exceed class capacity, preference is given to students with the higher GPAs.

Applicants must be able to meet the program's published *Essential Functions*, copies of which are incorporated into the application packet, and express a willingness to comply with the principles, rules, regulations, and policies of both the university and the program as they relate to the ideals and values of the Seventh-day Adventist Church and the clinical laboratory science profession.

All prerequisite course work, including General Education, cognate science, and pre-clinical courses, must be completed prior to entry into the clinical year. A personal interview may be required at the discretion of the Admissions Committee.

In exceptional circumstances, the Admissions Committee may accept students outside the stated policy.

Student Progression in Clinical Year. The clinical year is highly structured and sequential. Enrolled students may not drop a class, audit a class, or earn a grade lower than C- in any class. Students may enter clinical practica only upon satisfactory completion of on-campus course work. Satisfactory completion is defined as a senior-year minimum cumulative GPA of 2.50 and the recommendation of the faculty. A student receiving a cumulative GPA of less than 2.50 may be allowed to advance if the program faculty identifies exceptional circumstances and recommends that the student continue in the program.

Student continuance in the clinical practica is conditional upon acceptable ethical deportment and exemplary patient-care practices. The hospital supervisors and program faculty are final arbiters in determining student continuance.

Professional Certification. Students who complete the degree program are eligible to write national certification examinations sponsored by the American Society for Clinical Pathology (ASCP) and the National Credentialing Agency for Laboratory Personnel (NCA).

Program Accreditation. The Andrews University Program for Clinical Laboratory Sciences holds accreditation from the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS), 8410 West Bryn Mawr Avenue, Suite 670, Chicago, IL 60631-3415, (773) 714-8880.

ACADEMIC CALENDAR 2003-2004

2003

July 25	Senior Summer session (Clinicals) ends
July 28	Registry Review Week begins
August 2	Clinical Laboratory Science Certification Ceremony

2004

April 30	Senior Spring semester (Clinicals) ends
May 3	Senior Summer semester (Clinicals) begins
July 23	Senior Summer session (Clinicals) ends
July 26	Registry Review Week begins
July 31	Clinical Laboratory Science Certification Ceremony

Undergraduate Programs

BS in Clinical Laboratory Science (BSCLS)—127

General Education requirements—37

(Adjustments for BSCLS)

Directed Electives—6

Arts & Humanities—3

Language/Communication

Social Science—3

Mathematics—3

AU students—Statistics preferred. Students transferring into clinical program—any college-level course

PE/Wellness—2

HLED120 plus one activity course. Must also pass a physician-administered physical exam before advancement to clinical practica

Physical/Natural Sciences: see cognate sciences below

Religion—12

(or one course per year of residence)

Service Fieldwork—fulfilled through 23 credits of clinical practicum.

Cognate Science Requirements—26

BIOL165: BIOL166 or 111; CHEM131, 132, 231, 232, 241, 242.

Major Requirements—61

Prerequisites—11

CLSC105, 110, 230, 250, 260

Major courses—50

CLSC320, 400, 401, 402, 411, 412, 413, 421, 423, 431, 432, 433, 441, 442, 443, 451, 452, 453, 460, 463, 495.

Directed electives—6

Students select courses in consultation with and by the consent of their advisors in a planned program to enhance professional preparation. Courses are chosen from biology, business, chemistry, computer science, electronics, and education. Pre-medical/pre-dental students must include PHYS141 142 General Physics (8 credits).

BS: Allied Health Administration—65

This degree is designed for health-care professionals seeking to enhance the knowledge they already have and to help them prepare for future career employment requirements. The degree format features a strong general education and administrative/business component and provides an academic foundation for health-care administrative positions. It is open only to individuals holding an associate degree or a two-year certificate in an allied-health professional area with earned certification where applicable in such areas as diagnostic ultrasound, nuclear medicine, physician assistant, radiation therapy, radiologic technology, respiratory therapy, and special procedures in radiologic technology. Admission to the program is by permission of the Department of Allied Health chair.

Degree Requirements—124

Transfer credits accepted from an AS degree or certificate program—34

General Education Requirements—45

Complete Bachelor of Science General Education requirements.

Business/Administration Courses—27

ACCT 121, 122, BSAD335, 341, 355, 384,

ECON226, MKTG310 and management courses selected in consultation with and approval of the advisor.

ALHE480 Practicum in Administration—4

Graduate Programs

MS in Clinical Laboratory Science (MSCLS)—32

The Department of Allied Health offers a graduate program leading to the Master of Science in Clinical Laboratory Science. In response to the diversity of career skills required by the clinical laboratory scientist (medical technologist), the degree features a variety of program emphases, including concentrations in biomedical sciences, business and management, and education.

Admission requirements. In addition to the minimum general requirements for admission to a graduate program listed in the graduate admission section of this bulletin, the following are departmental requirements:

- Applicants' previous course work must include 16 semester credits of biological sciences, 16 semester credits of chemistry, and one college-level course in mathematics. Deficiencies must be removed prior to admission to the graduate program.
- Applicants must hold professional certification and/or licensure in clinical laboratory science (medical technology) acceptable to the admissions committee. Certification may be either general or in one of the recognized areas of specialization. Acceptable certification is usually defined as that offered by the American Society for Clinical Pathology or The National Credentialing Agency for Laboratory Personnel sponsored by the American Society of Clinical Laboratory Science.

Individuals lacking professional certification may be granted provisional admission while they pursue the course work required for eligibility to write the national certification examinations. These clinical courses and their prerequisites require a minimum of four academic semesters. The courses include CLSC320, 400, 401, 402, 411, 412, 413, 421, 423, 431, 432, 433, 441, 442, 443, 451, 452, 453, 460, 463, and 495. Students must receive professional certification before completing 16 graduate credits.

DEGREE REQUIREMENTS

In addition to meeting the general requirements for graduate degree programs, students must meet the following departmental requirements:

- Complete a minimum of 32 semester credits including the core of 20 semester credits and 12 semester credits selected from the emphasis chosen.
- Have the graduate program coordinator approve course selections and course sequencing. Students may substitute alternate courses listed in this bulletin with the consent of the coordinator and the approval of the dean of the College of Arts and Sciences.
- No grade lower than C is acceptable in the graduate portion of the program.
- Maintain a minimum cumulative GPA of 3.00 for the graduate portion of the program.

Core courses—20

ACCT500 or 635; BSAD500; CLSC501, 502, 561, 562, 585; plus a minimum of 3 graduate religion credits selected in consultation with graduate program coordinator

A minimum of 12 semester credits from one of the following options:

Biomedical Emphasis: BCHM421, 422, 430; BIOL419, 444, 445, 446, 447, PHTH417, 427, 447, 457, BOT525, ZOOL464, 475, 500

Business and Management Emphasis: ACCT635 (*if not taken as part of the core*), BSAD515, 530, 531, 532, 535, 638, 670, MKTG500, 540, NRS517

Education Emphasis: EDAL520, EDCI547, 565, 636, 655, EDFN500, EDPC514, EDTE408, 424

Enrollment Continuation Requirements. A student whose cumulative graduate GPA falls below 3.00 in any given semester is placed on academic probation. Academic probation students are not allowed to register for or continue participation in CLSC585.

In consultation with the graduate program coordinator, the clinical laboratory science graduate faculty determines the student's proposed course load for the following semester. The faculty's recommendation is referred to the dean/graduate program coordinator of the College of Arts and Sciences for final approval.

A student who does not raise his/her graduate GPA to 3.00 within one full-time equivalent semester (12 credits) is terminated from the program. Exceptions require the approval of the clinical laboratory science graduate faculty and the dean/graduate program coordinator of the College of Arts and Sciences.

Courses

(Credits)

See inside front cover for symbol code.

ALHE440

(1-4)

- CLSC260** § (3)
Fundamentals of Human Blood Biology
 Introduces the production, maturation, function of normal blood cells and hemostasis; blood group antigen systems, antibody identification and compatibility testing. Selected routine manual hematology, hemostasis, and immunohematology procedures are performed. Weekly: Three lectures and one lab.
- CLSC320** (3)
Principles of Immunology
 Innate and acquired immune systems of the human organism; immunoglobulin production, structure, function, and diversity; antigen characteristics, variety, and specific red cell groups; tolerance and memory; complement structure and function; cell mediated immunity function and regulation; autoimmune disorders; transplantation and tumor immunology; immunodeficiency disorders; principles and procedures of techniques used in modern immunology lab. Weekly: Three lectures.
- CLSC400** (2)
Specimen Procurement and Processing
 Clinical specimen collection and processing; point-of-care testing, professional ethics; phlebotomy practicum. Prerequisite: permission of the instructor.
- CLSC401, 402** (0)
Clinical Year Seminar I, II
 Introduction to educational methodology, team building, clinical laboratory sciences literature and research design and practice. Preparation and delivery of written and oral presentations on current topics. Attendance to all sessions is required. A pass/fail grade is assigned. Prerequisite: permission of Program Director.
- CLSC411** (3)
Hematology
 Cellular elements of the blood, their maturation, functions, and morphologies; abnormal and disease state hematologies; principles and procedures of routine and special hematology assay methodologies; correlation of patient conditions with results of hematology assay results. Prerequisites: CLSC260 and permission of Program Director.
- CLSC412** (1)
Hemostasis
 Hemostasis systems, their function, interaction, and monitoring; correlation of hemostasis assay results with various disorders; thrombosis and anticoagulant therapy; principles and procedures of routine and special hemostasis assays. Prerequisites: CLSC411 and permission of Program Director.
- CLSC413** (4)
Clinical Hematology & Hemostasis Practicum
 Professional health-care laboratory practicum; emphasis in patient-care application of hematology and hemostasis procedures. Prerequisites: CLSC411, 412 and permission of Program Director.
- CLSC421** (2)
Clinical Immunology
 Antigen/antibody functions and interactions; detection and analyses. Basic immunologic mechanisms. Theory of immunologic and serologic procedures. Immunologic manifestations in infectious diseases. Quality control in immunology. Prerequisites: CLSC320 and permission of Program Director.
- CLSC423** (1)
Clinical Immunology Practicum
 Professional health-care laboratory practicum: emphasizes patient-care applications of immunologic and serologic procedures. Prerequisites: CLSC421 and permission of Program Director.
- CLSC431** (4)
Clinical Microbiology
 Simulated clinical practice for the separation of normal flora from pathogenic microorganisms encountered in various body sites; emphasis on identification of pathogens, solving case histories and unknowns; study of antimicrobial mode of action and testing. Specimen collection, culture and identification of mycobacteria. Prerequisites: CLSC230 and permission of Program Director.
- CLSC432** (2)
Special Microbiology
 Study of parasites, fungi and viruses involved in human infections. Emphasis on specimen collection and preservation, culture and identification procedures. Prerequisites: CLSC431 and permission of Program Director.
- CLSC433** (5)
Clinical Microbiology Practicum
 Professional health-care laboratory practicum; emphasis in patient-care applications of bacteriology, mycology, parasitology, and virology. Prerequisites: CLSC431, CLSC432 and permission of Program Director.
- CLSC441** (3)
Immunohematology
 Blood grouping and typing; blood group antigen systems; compatibility testing; antibody identification; quality control and quality assurance; donor recruitment and selection; blood-banking records; grouping and compatibility problem solving; patient clinical state correlations. Prerequisites: CLSC260, CLSC320 and permission of Program Director.
- CLSC442** (1)
Transfusion Medicine
 In-depth study of immunohematology testing results, clinical patient manifestations, blood component therapy and blood product requirements. Prerequisites: CLSC441 and permission of Program Director.
- CLSC443** (4)
Clinical Immunohematology Practicum
 Professional health-care laboratory practicum; emphasis in patient-care applications of immunohematology. Prerequisites: CLSC441, 442 and permission of Program Director.
- CLSC451** (4)
Clinical Chemistry
 Carbohydrate, lipid, enzyme, electrolyte, acid-base balance, trace element, protein systems, and gastric functions; correlation with normal physiology and selected pathological correlations. Analysis of relevant blood and body fluids constituents. Prerequisites: CLSC250 and permission of Program Director.
- CLSC452** (2)
Clinical Chemistry and Body Fluids
 Liver function, renal function, endocrinology, toxicology, and therapeutic drug monitoring. Analysis of various body fluids such as serous fluids, synovial fluid, amniotic fluid, and urine. Correlations with normal physiology and selected pathological conditions. Prerequisites: CLSC451 and permission of Program Director.

