

RESPIRATORY CARE

C. William Habenicht, Coordinator
(616) 471-6551

Physical Therapy Building

Andrews University offers prerequisite course work to prepare students who wish to enter a 2-year Associate of Science degree 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
(616) 471-3336
cls@andrews.edu
<http://www.andrews.edu/ALHE>

Faculty

Marcia A. Kilsby, *Chair, CLS Program Director*
Albert W. McMullen
Richard D. Show, *Graduate Program Coordinator*
Clifford Sutherland

Academic Programs	Credits
BS in Clinical Laboratory Science	127
BS in Allied Health Administration	65
MSCLS (Clinical Laboratory Science)	32
Biomedical	
Business	
Computer Information Science	
Education	

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 3 years of undergraduate (pre-clinical) studies plus one year (3 semesters) of clinical (professional) education.

Pre-clinical Program. The first 3 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 adviser 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 (Practicums). Students work side-by-side with practicing professionals in patient health care during the final portion of the clinical year. Andrews University maintains a number of affiliations with clinical institutions across the country. Student preferences for clinical site assignments are solicited and granted when possible. Final site assignments are made at the discretion of the faculty.

Clinical Year Admission Requirements. An independent admissions process is required for university students who wish to enter clinical studies. Application forms may be obtained from the Department of Allied Health office. Students should complete these applications and return

them to the departmental office by 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 of Clinical Pathologists (ASCP) and the National Certification Agency of Medical 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 2000-2001

March 9	On-campus Didactic Studies end
March 19	Clinical practicums begin
May 11	Senior Spring semester (Clinicals) ends
May 14	Senior Summer semester (Clinicals) begins
July 27	Senior Summer semester (Clinicals) ends
August 6	Beginning of Registry Review Week
August 11	Certification ceremony

Undergraduate Programs

BS in Clinical Laboratory Science—127

General Education requirements—31 (Adjustments for BSCLS)

Arts & Humanities—3

Social Science—3

Mathematics—3

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

PE/Wellness—2

HLED130. Must also pass a physician-administered physical exam before advancement to clinical practicums

Physical/Natural Sciences: see cognate sciences below

Religion—16

(or one course per year of residence)

Service Fieldwork—fulfilled through 24 credits of clinical practicums.

Cognate Science Requirements—29

BIOL165: BIOL166 or 111, and 3-4 credits of relevant BIOL, PTH, or ZOOLOG courses; CHEM131, 132, 231, 232.

Major Requirements—61

Prerequisites—11

CLSC101, 102, 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, 490, 495.

Directed electives—6

Students select courses in consultation with and by the consent of their advisers 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—54

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—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, computer information science, 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 of Clinical Pathologists or The National Certification Agency for Medical 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 4 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, 490, 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, PPTH417, 427, 447, 457, BOT525, ZOOLOG464, 475, 500

Business Emphasis: ACCT635 (if not taken as part of the core), BSAD436, 475, 515, 530, 531, 532, 535, 638, 670 MKTG500, 540, NRS517

Computer Information Science

Emphasis: Courses selected in consultation with and approved by the graduate program coordinator.

Education Emphasis: EDAL520, EDCI486, 547, 552, 636, 655, EDFN500, EDPC514, EDTE404, 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)

Topics in _____
Repeatable in different areas. Prerequisite: Permission of Program Director.

ALHE480 (4)

Practicum in _____
Prerequisite: Permission of Program Director.

CLSC101 (1)

(was MTCH105)
Medical Terminology and Introduction to Health Professions

An in-depth study of medical terminology and an introduction to the health professions offered on Andrews University campus. Weekly: One lecture.

- CLSC102** (1) functions, and morphologies; abnormal and
(was **MTCH106**) disease state hematologies; principles and
Introduction to Clinical Laboratory Science procedures of routine and special hematology
Exercises from major clinical laboratory science assay methodologies; correlation of patient
disciplines are demonstrated or performed. conditions with results of hematology assay
Weekly: One three-hour lab. results.
- CLSC230** \$ (3) **CLSC412** (1) **CLSC441** (3)
(was **MTCH235**) **Hemostasis** (was **MTCH441**)
Fundamentals of Clinical Microbiology Hemostasis systems, their function, interaction, and monitoring; correlation of hemostasis assay
Orientation to clinical microbiology; specimen results with various disorders; thrombosis and
selection, collection, and transport; microscopic anticoagulant therapy; principles and procedures
evaluation; stains and sterilization techniques; of routine and special hemostasis assays.
media and incubation selections; identification of
routine and non-routine microorganisms;
susceptibility testing; automation and quality
assurance. Weekly: two lectures and two labs.
- CLSC250** \$ (3) **CLSC413** (4) **CLSC442** (1)
(was **MTCH255**) **Clinical Hematology & Hemostasis Practicum** (was **MTCH442**)
Fundamentals of Clinical Chemistry Professional health-care laboratory practicum; *Transfusion Medicine*
Clinical lab procedures, safety, application of emphasis in patient-care application of
statistical procedures in quality control, and hematology and hemostasis procedures.
and principles of clinical laboratory instrumentation. Prerequisites: CLSC411, 412 and permission of
Topics include carbohydrates, lipids, electrolytes, Program
and hepatic function with selected pathologies. Director.
Weekly: Three lectures and one lab.
- CLSC260** \$ (3) **CLSC421** (2) **CLSC443** (4)
(merges **MTCH215, 245**) **Clinical Immunology** (was **MTCH443**)
Fundamentals of Human Blood Biology Antigen/antibody functions and interactions; *Clinical Immunohematology Practicum*
Introduces the production, maturation, function of detection and analyses. Basic immunologic
normal blood cells and hemostasis; blood group mechanisms. Theory of immunologic and
antigen systems, antibody identification and serologic procedures. Immunologic manifestations
compatibility testing. Selected routine manual in infectious diseases. Quality control in
hematology, hemostasis, and immunohematology immunology. Prerequisites: CLSC320 and
procedures are performed. Weekly: Three lectures permission of Program Director.
and one lab.
- CLSC320** (3) **CLSC423** (1) **CLSC451** (4)
(was **MTCH 345**) **Clinical Immunology Practicum** (was **MTCH451**)
Principles of Immunology Professional health-care laboratory practicum; *Clinical Chemistry*
Innate and acquired immune systems of the emphasizes patient-care applications of
human organism; immunoglobulin production, immunologic and serologic procedures.
structure, function, and diversity; antigen Prerequisites: CLSC421 and permission of
characteristics, variety, and specific red cell Program Director.
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) **CLSC431** (4) **CLSC452** (2)
(was **MTCH400**) **Clinical Microbiology** (was **MTCH431**) (merges **MTCH452, 461**)
Specimen Procurement and Processing Simulated clinical practice for the separation of *Clinical Chemistry and Body Fluids*
Clinical specimen collection and processing; emphasis on identification of pathogens, solving case histories
point of care testing, professional ethics; phlebotomy and unknowns; study of antimicrobial mode of
practicum. Prerequisite: Permission of the action and testing. Specimen collection, culture
instructor. and identification of mycobacteria. Prerequisites: and therapeutic drug monitoring.
CLSC230 and permission of Program Director. 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.
- CLSC401, 402** (0) **CLSC432** (2) **CLSC453** (5)
(was **MTCH401, 402**) **Special Microbiology** (was **MTCH453**)
Clinical Year Seminar I, II Study of parasites, fungi and viruses involved in *Clinical Chemistry Practicum*
Introduction to educational methodology and human infections. Emphasis on specimen
collection and preservation, culture and
identification procedures. Prerequisites: CLSC431
and permission of Program Director.
- CLSC401, 402** (0) **CLSC433** (5) **CLSC460** (2)
(was **MTCH401, 402**) **Clinical Microbiology Practicum** (was **MTCH433**) (merges **MTCH410, 490**)
Clinical Laboratory Systems
Introduction to educational methodology and Survey of current Laboratory Information
Systems (LIS) including database design and
maintenance, test requesting, result entry, result
reporting, quality control applications, and
peripheral devices. Discussion in selected areas
that include health-care organizational structures;
problem solving in the clinical laboratory;
development of personnel evaluation procedures;
supply and equipment acquisition; budget
preparation and analysis; ethics; and regulatory
processes. Prerequisite: Permission of the Program
Director.
- CLSC411** (3) **CLSC433** (5) **CLSC460** (2)
(was **MTCH411**) **Clinical Microbiology Practicum** (was **MTCH433**) (merges **MTCH410, 490**)
Hematology Professional health-care laboratory practicum; *Clinical Laboratory Systems*
Cellular elements of the blood, their maturation, emphasis in patient-care applications of
bacteriology, mycology, parasitology, and
virology. Prerequisites: CLSC431, CLSC432 and
permission of Program Director.

Each of the BFA degree emphases has a 3-part curriculum: (1) Art History; (2) Visual Art Foundation; and (3) Advanced Visual Art. Additional cognates along with the General Education requirements complete the specifications for graduation for the BFA degrees.

BFA 9-hour Complementary Area Requirement:

BFA students must take courses beyond the introductory level in an area(s) which complement(s) their chosen media emphasis. For example, if the 27 hour emphasis is ceramics (3-dimensional), then the complementary area may be painting and/or printmaking (2-dimensional); and conversely, if the 27 hour emphasis is painting (2-D), then the complementary area may be sculpture and/or ceramics (3-D). The photography emphasis may allow 8 hours of graphic design (ART214 and 414) to be substituted to meet the complementary area requirement. The Graphic Design complementary area is shaped with the student's adviser and may include such areas as computer graphics, photographic arts, marketing, and communication.

BFA: Graphic Design

Digital Media Emphasis (2-D)—89

The digital art and design emphasis is recommended for those wishing to combine the study of art and design with the opportunity to explore more extensively computer graphics environments as a medium for visual communication and/or personal artistic expression.

The degree prepares students to enter one of the computer-based visual communication-oriented professions educated as an artist or designer/visual communicator, or to enter graduate studies in electronic visualization.

Art History—9

ARTH235, 236, 440

Visual Art Foundation—22

ART104, 116, 117, 118, 207, 304; PHTO115.

Digital Media Foundation—8

DGME175, 375.

Advanced Graphic Design—27

ART214, 310, 414 (16 hours), 495 Senior Exhibition and Slide Portfolio, 4 hours. Electives, 23 hours chosen in consultation with adviser from the following areas: DGME, ART, ARTH, PHTO, COMM, MKTG, JOUR.

Photography Emphasis (2-D)—80

Recommended for those preparing for professions that require people with well-developed perceptual skills who are comfortable working with complex equipment and changing technologies. Photography students are expected to develop a creative, experimental, and artistic approach to their work, regular and productive work habits, and eventually a personal focus that leads to a senior exhibition and portfolio. The BFA requires the following course work, including 9 hours of advanced work in a complementary 2-D or 3-D studio art medium (available in ceramics, painting, and printmaking).

Art History/Theory—14

ARTH235, 236, 420, 440 and electives from PHTO210, or 300.

Visual Art and Photography Foundation—25

ART104, 107, 116, 117, 118, 207; PHTO115.

Advanced Visual Art and Photography—41

ART304, 495 Senior Exhibition and Slide Portfolio 1 hour, and complementary visual art courses up to 9 hours; 28 hours advanced PHTO courses in consultation with adviser.

Cognate: JOUR375 Photojournalism.

BFA: Visual Art

The following three course groups are common to all BFA Visual Art and Pre-Art Therapy Emphases.

Art History Foundation—14

ARTH235, 236, 420, 440, plus one elective in art history (3 hours)

Visual Art Foundation—25

2-D courses: ART104, 116, 117, 207 and PHTO115;

3-D courses: ART107, 118.

Advanced Visual Art—41

ART304, 495 Senior Exhibition and Slide Portfolio, 1 hour; advanced work in one 2-D or 3-D emphasis (28 hours in one: ceramics, painting, or printmaking); complementary 2-D or 3-D emphasis (total of 9 hours).

Ceramics Emphasis (3-D)—80

Recommended for those pursuing studio pottery as a profession and who are comfortable working with ideas of aesthetic form, personal experimentation, technical production, and utilitarian purpose. Students work with a variety of traditional and state-of-the-art equipment and methods to gain a broad understanding of clay forming, glazing, and firing techniques necessary for the development of a personal focus. Early emphasis is placed on the mastery of ceramic craft and the development of regular and productive studio habits. Later, emphasis is placed on the development of a personal direction, senior exhibition, and portfolio. For the BFA degree in ceramics, students register for 28 hours of ART307 and 9 hours of complementary 2-D course work.

Painting Emphasis (2-D)—80

Recommended primarily for those planning to enter graduate school. Emphasis is on developing perceptions of form and color, a strong sense of 2-D design, awareness of the visual world as subject matter for aesthetic and intellectual response, the work habits necessary to turn feelings and ideas into satisfying compositions, and an eventual personal focus for purposes of a senior exhibition and portfolio. For their advanced work, students register for 28 hours of ART305 and 9 hours of complementary 3-D course work.

Pre-Art Therapy Emphasis—80

Recommended for those planning to do graduate work in art therapy and to enter that profession. May require credits beyond the normal college load. In addition to fulfilling the BFA degree requirements, students should also take PSYC101, 251, 252, 454, 460.

Printmaking Emphasis (2-D)—80

Recommended for those planning for professions that require people who are comfortable working with ideas of aesthetic form, personal experimentation, technological production, and utilitarian purpose. Students work with traditional and contemporary graphics/printmaking processes that result in the production of multiple works which are personal, aesthetic, and/or functional in purpose. Emphasizes the student's development of regular and productive studio work habits and a personal focus which leads to a senior exhibition and portfolio. For their advanced work, students register for 28 hours of ART 306 Printmaking and 9 hours of complementary 3-D course work.

BA: Art—40

The BA: Art is a liberal arts degree that relates broad intellectual knowledge to material, spiritual, and emotional awareness. The degree requires 40 hours in visual-art and art-history courses, a minor in a non-art second area, and the General Education requirements including a foreign language. Each of the BA emphases listed below require the following art history courses:

Art History Foundation—9

ARTH220, 235, 236, 440.

Art History Emphasis—40

Recommended for those planning to do graduate work in the humanities or enter professions that require a broad overview of visual culture. Students study art history as a field of inquiry into the stylistic, sociological and symbolic intentions of chiefly public works of art from a variety of cultures. In addition to the 9 hours of art history foundation courses listed above, the following courses are also required: ARTH420; Electives in Art History (17 hours) 6 hours chosen from ARTH328, 329, 450, and ART380; 6 hours chosen from ARCH315, 316, or 434; and 5 chosen from PHTO210, 300, or HORT350; 2-D Visual Art (3 hours); 3-D Visual Art (3 hours).

Required cognate: HIST400

Pre-Art Therapy Emphasis—40

Pre-art therapy students take the visual-arts foundation and advanced visual-art component from the visual-art emphasis listed below (40 hours) and 3 hours of ART 380 Topics is required—topics which relate to the study or practice of art therapy. A minor in Behavioral Sciences is required, including PSYC101, 251, 252, 454, 460.

Visual Art Emphasis—40

Recommended for those planning to enter professions that require skilled eye-hand coordination, sensitive workmanship, and well-developed perceptual and conceptual skills. In addition to the 9 hours of art history listed above, the following 31 hours of visual art (25 hours foundation and 6 hours advanced):

Visual Art Foundation—25

2-D Courses: ART104, 116, 117, 207;

PHTO115.

3-D Courses: ART107, 118.

Advanced Visual Art—6

Selected in consultation with the adviser from advanced drawing, painting, printmaking, and ceramics courses.

BS: Art Education—53

This degree, offered in cooperation with the Department of Teaching, Learning, and Administration, prepares students to teach art on the elementary and secondary levels. Majors desiring teacher certification or who are planning to teach art must complete the requirements for denominational and/or state teacher certification through the School of Education. The BS in art education requirement includes the successful completion of a senior exhibition and a portfolio of the student's work given to the Art Department.

Art History—9

ARTH235, 236, 440.

Art Methods—3

ART457, or ART459

Visual Art Foundation—25

ART104, 107, 116, 117, 118, 207; PHTO115.

Advanced Visual Art Requirements—12

In consultation with the adviser, do advanced