

Medical Technology Program

FACULTY COORDINATING COMMITTEE *Fan (Biology), Fry (Chemistry, chair), Gayhart (Chemistry), McQuade (Chemistry).*

ADJUNCT FACULTY *Adjunct Professors Dexter, Hayes, McCoy, Rubnitz; Affiliate Instructors Anderson, Becker, Roncancio-Weemer, Wray.*

The interdepartmental major in medical technology is jointly sponsored by the departments of biology and chemistry. The objective of the program is to provide the student with the appropriate background for admission to an accredited medical technology hospital program. This is a 3 + 1 program in which the student normally spends the first three years completing University course work necessary to fulfill general requirements for a bachelor's degree and a fourth year which is a clinical year spent in an affiliated hospital medical technology program. Upon successful completion of the required University course work, the student may apply to any of the affiliated and accredited hospitals offering a medical technology program. After successful completion of a hospital medical technology program, the student will be granted a bachelor's degree from Bradley. Students electing this major will be assigned an advisor in either the Department of Biology or the Department of Chemistry.

Students may also apply to any accredited medical technology hospital program if they have a baccalaureate degree in a 4 + 1 program. The degree obtained by most of these students is in biology or the liberal arts and sciences individualized major program.

Upon successful completion of the hospital clinical program and receipt of the baccalaureate degree, graduates are eligible to sit for the national certification exams in medical technology.

Descriptions of courses required for the degree in medical technology are listed under regular departmental offerings.

Clinical Year

The clinical year will include the following courses taken at an affiliated hospital medical technology program. The student registers at Bradley for OCP 388. A one-time fee of \$100 is charged for OCP 388.

Clinical Chemistry I **4-6 hrs.**
Theory and practice of analytical biochemistry as applied to pathologic states, methodology, and instrumentation. Statistics as applied to reagent preparation, result determination, and quality control.

Clinical Chemistry II **2-4 hrs.**
Theory and practice of analytical biochemistry as applied to specialized tests for drugs, endocrine function, and urine and body fluid analysis.

Clinical Hematology **5 hrs.**
Study of the origin, development, morphology, physiology, and pathophysiology of the formed elements of the blood and bone marrow. Manual and automated methods of cell counting, differentiation, and other special hematological procedures on blood and body fluids used in disease diagnosis are included.

Clinical Hemostasis **1 hr.**
Study of the platelet, vascular, coagulation, and fibrinolytic systems. Testing procedures and the application of the principles of hemostasis as related to disease states and therapeutic monitoring are also included.

Clinical Immunohematology **4 hrs.**
Study of red cell antigen-antibody systems, antibody screening and identification, compatibility testing, and immunopathologic conditions. Also included are donor requirements and blood component preparation and therapy.

Clinical Immunology **3 hrs.**
Study of the principles of the protective and adverse aspects of the cellular and humoral immune responses. Theory and performance of test procedures based on antigen-antibody reactions and clinical significance of test results are included.

Clinical Microbiology I **4-6 hrs.**
Theory and practice of the isolation and identification of pathogenic bacteria and mycobacteria in clinical specimens through cultures, morphology, biochemical, and/or serological reactions and their drug susceptibility. The relation of clinical testing to disease states is also included.

Clinical Microbiology II 2-4 hrs.

Theory and practice of the isolation and identification of fungi, parasites, rickettsia, and viruses utilizing morphological, cultural, biochemical, and serologic methods. The relation of clinical testing to disease states and epidemiology as it applied to microbiology is also included.

Special Topics in Clinical Laboratory Science 1 hr.

An overview of medical ethics, patient approach, the theory and practice of phlebotomy techniques, laboratory safety, applications of laboratory computer systems, and independent clinical research and development.

Clinical Management and Education 1 hr.

A basic introduction to the principles and theory of management and education as related to the clinical laboratory. The special job responsibilities of the clinical laboratory scientist in management and education are addressed.

Requirements

1. Satisfy University and LAS general education requirements and successfully complete required course work prior to admission to a hospital medical technology program.
2. Receive credit for a minimum of 40 junior-senior hours, 18 of which must be from the College of Liberal Arts and Sciences. Sixteen junior-senior hours will be granted upon successful completion of a hospital medical technology program.
3. Successful completion of a medical technology program in National Accrediting Agency for Clinical Laboratory Science (NAACLS). Approval of the coordinating committee is required for attendance at an accredited non-affiliated hospital.

Students desiring a major in medical technology will be required to complete 39 hours of science courses distributed as follows: 24 hours of biology (if BIO/CHM 141 is taken as a biology course), 16 hours of laboratory chemistry and 3 hours of college mathematics. These requirements may be met by taking the following courses:

BIO/CHM 141 Introduction to Medical Technology	1
BIO 123 Principles of Biology I	4
BIO 124 Principles of Biology II	4
BIO 395 General Microbiology.....	4
BIO 396 Immunology of Host Defense	3
BIO 200 Human Anatomy and Physiology	3
BIO 203 Human Anatomy and Physiology Laboratory	2
BIO 205 Pathophysiology or BIO 361 Microanatomy	3-4
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	24-25

CHM 110, 111 General Chemistry I or CHM 100, 101 Fundamentals of General Chemistry	4
CHM 116, 117 General Chemistry II (5) or CHM 151 Fundamentals of Organic Chemistry (2) and CHM 153 Organic-Biochemistry Laboratory (1)	3 or 5

BIO 365 Cell and Molecular Biology (3-4) or	
CHM 152 Fundamentals of Biochemistry (2).....	2-4
CHM 250 Organic Chemistry	4
CHM 306 Intermediate Analysis.....	3
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	16-20
MTH 111 Elem. Statistics or MTH 109 College Algebra.....	3
Total required science hours (minimum).....	39

Courses highly recommended are, PHY 107, MTH 115, and CIS 102, or CHM 191, 391.

Note: Those students who have not attained an overall grade point average of at least 2.75 after completion of 60 semester hours will require permission of the committee to proceed with the medical technology program.

The following schedule of courses is suggested for the freshman year.

First Semester

BIO 123 Principles of Biology I	4
CHM 110 General Chemistry	3
CHM 111 General Chemistry Lab.....	1
MTH 111 Elementary Statistics	3
ENG 101 English Composition or	
COM 103 The Oral Communication Process.....	3
General Education Elective	3
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Second Semester

BIO 124 Principles of Biology II	4
CHM 151 Fundamentals of Organic Chemistry	2
CHM 152 Fundamentals of Biochemistry	2
CHM 153 Organic-Biochemistry Laboratory	1
BIO/CHM 141 Introduction to Medical Technology.....	1
COM 103 The Oral Communication Process or	
ENG 101 English Composition.....	3
General Education Elective	3
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	16

The hours required for a major in Medical Technology are distributed as follows:

From Medical Technology Program (OCP 388)	32
Biology	*24-25
Chemistry	16
College Mathematics	3
English	6
Speech Communication	3
General Education Electives and other Electives.....	38-39
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Total (minimum)	124

* If BIO/CHM 141 is taken as a biology course.