MEDT - Medical Technology

MEDICAL TECHNOLOGY Courses

MEDT 210. Orientation to Medical Technology. 1 Credit.
An introduction to the profession of medical technology. Professional, ethical and operational issues will be discussed.

MEDT 300. Phlebotomy Procedures of Nursing Personnel. 1 Credit.
This entry-level course, delivered in lecture/lab format, will provide direct instruction and practice in all phlebotomy techniques used in the collection of blood from infants, children, and adults. Techniques will include capillary and venipuncture methods that use multi-sampling devices as well as techniques used for special populations, patients in isolation, and ER trauma draws. Prerequisites: NURS 304.

MEDT 307. Clinical Methods in Microbiology. 2 Credits.
Laboratory techniques in the diagnosis of clinically relevant microorganisms. Corequisite: MEDT 308.

MEDT 308. Clinical Microbiology. 3 Credits.
A fundamental course in microbiology that includes bacterial growth, synthesis, differentiation, microbial nutrition and metabolism. Prerequisites: BIOL 115N and BIOL 116N or BIOL 121N, BIOL 122N, BIOL 123N, and BIOL 124N; CHEM 211 is recommended or permission of the instructor.

MEDT 309. Medical Bacteriology. 3 Credits.
A comprehensive survey of bacteria, including colonial morphology, cultural characteristics, biochemical identification, pathogenicity, epidemiology, and treatment. Prerequisites: MEDT 307 and MEDT 308.

MEDT 310. Urinalysis and Body Fluids. 1 Credit.
A study of the chemical, physical and microscopic analysis of human urine and other body fluids, with abnormal results interpreted and correlated to disease processes, and cancer cytology of the urinary tract. Corequisite: MEDT 313. Prerequisites: BIOL 250 and BIOL 251 or permission of the instructor.

MEDT 311. Hematology. 3 Credits.
The study of the principles of the formation and development of blood, including the interpretation of normal and abnormal blood morphology and diagnostic procedures in the investigation of hematological disorders. Corequisite: MEDT 312. Prerequisites: BIOL 250 and BIOL 251 or permission of the instructor.

MEDT 312. Hematology Laboratory. 1 Credit.
Laboratory methods utilizing microscopy and other analytical procedures in the diagnosis and investigation of hematological disorders. Corequisite: MEDT 311.

MEDT 313. Diagnostic Methods in Urinalysis. 1 Credit.
Laboratory experience in the chemical, physical, and microscopic examination of the urine and body fluids with emphasis on quality control, osmometry, and disease correlates. Corequisite: MEDT 310. Prerequisites: BIOL 250 or equivalent.

MEDT 315. Clinical Laboratory Diagnosis. 3 Credits.
An introduction to clinical diagnostic principles utilized in immunology, serology, and hemostasis. Prerequisites: students must be graduates of a clinical laboratory training program.

MEDT 319. Medical Bacteriology Methods. 2 Credits.
Laboratory methods emphasizing isolation, identification and media requirements for pathogenic microorganisms. Corequisite: MEDT 309.

MEDT 320. Blood Collection Techniques. 2 Credits.
Laboratory methods in the procurement of blood by capillary, venipuncture and arterial draws, analytical variables, special phlebotomy tests, isolation techniques, safety, forensic, molecular, legal and ethical implications, pediatric, geriatric, and compromised patient concerns. All students must submit to venipuncture by fellow students. Prerequisites: BIOL 250 or equivalent or permission of the instructor.

MEDT 322. Phlebotomy Internship. 2 Credits.
A 120-hour clinical internship for those desiring to qualify for the ASCP certification exam. Prerequisites: MEDT 320.

MEDT 324. Clinical Instrumentation and Electronics. 3 Credits.
A course covering the theory, operation, selection, maintenance and quality control of instruments in the clinical laboratory. Instruments discussed include spectrophotometers, flame photometry, atomic absorption, fluorometry, gas and liquid chromatography, mass spectrometry, chemiluminescence, immunochemical and nephelometric methods, electrophoresis, radiation detection and dosimetry, osmometry, electrochemistry and applications to molecular diagnostic and forensic testing, and basic electronic applications. Statistical applications to data analysis of both instrument and method comparisons, trouble shooting and quality control in the clinical lab. Corequisite: MEDT 325. Prerequisites: CHEM 211 or CHEM 321, MATH 102M or permission of the instructor.

MEDT 325. Clinical Instrumentation Methods. 1 Credit.
A laboratory course designed for students entering the clinical laboratory field. The course includes the instrumental and data processing techniques required for the clinical analysis of body fluids as well as applied statistical techniques to the interpretation of laboratory data, and statistical comparison methods. Lab to include lab sessions in molecular diagnostic testing, comparison studies, quality control, calibration, maintenance, and trouble shooting of clinical chemistry analytics. Prerequisites: MATH 102M, CHEM 121N, CHEM 122N, CHEM 123N, CHEM 124N, and CHEM 211.

MEDT 326. Immunohematology. 3 Credits.
The study of the identification of blood group antigens and antibodies, standard testing procedures, decision criteria for component selection, and regulations of blood banks and transfusion services. Corequisite: MEDT 336. Prerequisites: MEDT 311, MEDT 330, MEDT 331, BIO 250, and BIO 251 or permission of the instructor.

MEDT 327. Hemostasis. 1 Credit.
The study of the fundamentals of hemostasis, emphasizing principles, evaluation techniques, and diagnostic applications. Class meets the first 7 weeks of the semester. Prerequisites: MEDT 311, MEDT 312 or permission of the instructor.

MEDT 330. Clinical Immunology/Serology. 2 Credits.
The study of the body's immune response, its cellular and non-cellular components, in-vitro manifestations, diagnostic techniques and interpretations related to the investigation and diagnosis of infectious and non-infectious disease states. Corequisite: MEDT 331. Prerequisites: BIOL 121N, BIOL 122N, BIO 250 and BIO 251 or permission of the instructor.

MEDT 331. Clinical Immunology/Serology Laboratory. 1 Credit.

MEDT 336. Immunohematology Laboratory. 1 Credit.
Laboratory methods emphasizing procedures that lead to the identification of blood group antigens and antibodies and the selection of therapeutic components necessary for making transfusion-related decisions. Corequisite: MEDT 326.

MEDT 337. Advanced Hematology. 1 Credit.
The microscopic study of blood cells in blood and body fluids, emphasizing morphologic identification and correlation of laboratory data in order to identify specific disease states. Class meets the second 7 weeks of the semester. Prerequisites: MEDT 311 and MEDT 312 or permission of the instructor.

MEDT 339. Medical Parasitology and Mycology Laboratory. 1 Credit.
Laboratory methods emphasizing the identification of medically relevant parasites and fungi. Corequisite: MEDT 340.

MEDT 340. Medical Parasitology, Mycology, and Virology. 1 Credit.
A study of the medically important parasites, fungi, and viruses, and their medical significance. Prerequisites: MEDT 307, MEDT 308 or permission of the instructor.
MEDT 350. Urinalysis. 1 Credit.
A study of the chemical, physical and microscopic analysis of human urine and body fluids, anatomy and physiology, and pathophysiology, with abnormal results interpreted and correlated to disease processes. Restricted to distance education students. Prerequisites: BIOL 250 and BIOL 251 or permission of the instructor.

MEDT 351. Clinical Biochemistry. 3 Credits.
An introduction to the applications of biochemistry and clinical testing in the diagnosis of human disease. Practice given in the interpretation of laboratory data in the areas of carbohydrate, protein, lipid, genetic disorders, liver, renal, pancreatic, G.I., enzymatic, and cardiac testing. Also enzyme kinetics, electrolytes, acid base physiology, tumor markers, endocrinology, pharmacokinetics, therapeutic drug monitoring, and molecular diagnostics. Special emphasis on specimen collecting, pre- and post-analytical variables, and case studies. Prerequisites: BIOL 250, BIOL 251, CHEM 211, and CHEM 212, or permission of the instructor.

MEDT 401. General Pathology. 3 Credits.
This course is an overview of general disease processes and causes in the human. All body systems will be covered including respiratory, gastrointestinal, circulatory, nervous, reproductive, and urinary. Aging, dietary, and stress factors will be discussed in the disease process. Bacteria, fungi, and viruses will be discussed in general and for each body system. Neoplasms will be covered for each body site. This course will be of benefit to anyone interested in diseases of the human body or entering the medical field. (cross listed with CYTO 404) Pre- or corequisite: BIOL 250 and BIOL 251 or equivalent.

MEDT 403W/S03. Management in the Clinical Setting. 3 Credits.
A course concerned with organization and management in the clinical setting including personnel supervision, planning, equipment justification, quality assurance, data processing, budgeting, fiscal techniques, marketing, regulatory agencies, educational methodologies, current issues, as well as legal and ethical considerations. (This is a writing intensive course.) Prerequisites: junior standing and a grade of C or better in ENGL 110C and ENGL 211C or ENGL 221C or ENGL 231C.

MEDT 404. Clinical Hematology Practicum. 4 Credits.
Direct clinical experience offered in automated and manual hematology procedures used in distinguishing blood dyscrasias and coagulation abnormalities. (qualifies as a CAP experience) Prerequisites: MEDT 311, MEDT 312, MEDT 327, MEDT 337, and permission of the program director.

MEDT 406. Clinical Microbiology Practicum. 5 Credits.
Direct clinical experience offered in isolating and identifying human pathogens such as bacteria, fungi, and parasites from various clinical specimens. (qualifies as a CAP experience) Prerequisites: MEDT 307, MEDT 308, MEDT 309, MEDT 319 and permission of the program director.

MEDT 440/540. Statistical Applications and Data Analysis in the Clinical Laboratory. 3 Credits.
Topics include review of basic statistics used in the laboratory; use of statistics for quality control, reference range determination, method comparisons, test utility assessment, techniques for searching the literature and assessing quality and applicability of published studies; and data organization and retrieval via queries. Students will perform projects, preferably using actual laboratory data, that relate to lecture topics. Prerequisites: STAT 130M and permission of the instructor.

MEDT 441. Clinical Hematology Competencies. 1 Credit.
Demonstration of stated clinical laboratory competencies in an approved laboratory setting within the discipline of hematology. Prerequisites: MEDT 311 and MEDT 315.

MEDT 442. Clinical Microbiology Competencies. 1 Credit.
Demonstration of stated clinical laboratory competencies in an approved laboratory setting within the discipline of clinical microbiology. Prerequisites: MEDT 309.

MEDT 443. Clinical Chemistry Competencies. 1 Credit.
Demonstration of stated clinical laboratory competencies in an approved laboratory setting within the discipline of clinical chemistry. Prerequisites: MEDT 324 and MEDT 351.

MEDT 444. Clinical Blood Bank Competencies. 1 Credit.
Demonstration of stated clinical laboratory competencies in an approved laboratory setting within the discipline of blood banking. Prerequisites: MEDT 315 and MEDT 326.

MEDT 445. Advanced Clinical Practicum. 3 Credits.
A project-based advanced clinical experience for laboratory practitioners emphasizing enhancement of basic procedures and techniques and development of management, research, computer and educational skills, resulting in a written paper and oral presentation. (qualifies as a CAP experience) Prerequisites: MEDT 440 or approved research methods course; or permission of instructor.

MEDT 452. Clinical Biochemistry Practicum. 5 Credits.
Direct clinical experience offered in the theories and principles of blood chemistry determinations with emphasis on the instruction of technical procedures used in an AABB approved blood bank. (qualifies as a CAP experience) Prerequisites: MEDT 311, MEDT 312, MEDT 326, MEDT 336, and permission of the program director.

MEDT 454. Clinical Blood Bank Practicum. 4 Credits.
Direct clinical experience offered in the theories and principles of blood banking with emphasis on the instruction of technical procedures used in an AABB approved blood bank. (qualifies as a CAP experience) Prerequisites: MEDT 311, MEDT 312, MEDT 326, MEDT 336, and permission of the program director.

MEDT 457. Medical Technology Seminar. 1 Credit.
Independent study in all the areas of the clinical laboratory, culminating in a comprehensive final exam in all areas of medical technology. Excellent review for certification exams. Prerequisites: permission of the program director.

MEDT 458. Clinical Elective Practicum. 1 Credit.
Directed internship in any clinical area of interest approved by the clinical instructor and program director. (qualifies as a CAP experience) Prerequisites: permission of the program director.

MEDT 495. Special Topics in Medical Technology. 1-3 Credits.
The advanced study of selected topics within the medical field. Prerequisites: permission of the program director.

MEDT 497. Directed Study in Medical Technology. 1-3 Credits.
Supervised experience in medical technology specialties, allowing students to pursue areas of interest under faculty direction. Prerequisites: permission of the program director.

MEDT 498. Clinical Research Methods. 3 Credits.
An introduction to clinical research methods to include sampling techniques, data collection and analysis, inferential statistics, multivariate analysis, hypothesis testing and research design. The student will be expected to develop a research proposal based upon a critical review of the literature. Prerequisites: STAT 130M or permission of the instructor.

MEDT 503. Management in the Clinical Setting. 3 Credits.
A course concerned with organization and management in the clinical setting including personnel supervision, planning, equipment justification, quality assurance, data processing, budgeting, fiscal techniques, marketing, regulatory agencies, educational methodologies, current issues, as well as legal and ethical considerations. (This is a writing intensive course.)

MEDT 540. Statistical Applications and Data Analysis in the Clinical Laboratory. 3 Credits.
Topics include review of basic statistics used in the laboratory; use of statistics for quality control, reference range determination, method comparisons, test utility assessment, techniques for searching the literature and assessing quality and applicability of published studies; and data organization and retrieval via queries. Students will perform projects, preferably using actual laboratory data, that relate to lecture topics.

MEDT 441. Clinical Hematology Competencies. 1 Credit.
Demonstration of stated clinical laboratory competencies in an approved laboratory setting within the discipline of hematology. Prerequisites: MEDT 311 and MEDT 315.

MEDT 444. Clinical Blood Bank Competencies. 1 Credit.
Demonstration of stated clinical laboratory competencies in an approved laboratory setting within the discipline of blood banking. Prerequisites: MEDT 315 and MEDT 326.

MEDT 445. Advanced Clinical Practicum. 3 Credits.
A project-based advanced clinical experience for laboratory practitioners emphasizing enhancement of basic procedures and techniques and development of management, research, computer and educational skills, resulting in a written paper and oral presentation. (qualifies as a CAP experience) Prerequisites: MEDT 440 or approved research methods course; or permission of instructor.

MEDT 452. Clinical Biochemistry Practicum. 5 Credits.
Direct clinical experience offered in automated and manual clinical chemistry determinations with emphasis on the instruction of technical procedures used in an AABB approved blood bank. (qualifies as a CAP experience) Prerequisites: MEDT 311, MEDT 312, MEDT 326, MEDT 336, and permission of the program director.

MEDT 457. Medical Technology Seminar. 1 Credit.
Independent study in all the areas of the clinical laboratory, culminating in a comprehensive final exam in all areas of medical technology. Excellent review for certification exams. Prerequisites: permission of the program director.

MEDT 458. Clinical Elective Practicum. 1 Credit.
Directed internship in any clinical area of interest approved by the clinical instructor and program director. (qualifies as a CAP experience) Prerequisites: permission of the program director.

MEDT 495. Special Topics in Medical Technology. 1-3 Credits.
The advanced study of selected topics within the medical field. Prerequisites: permission of the program director.

MEDT 497. Directed Study in Medical Technology. 1-3 Credits.
Supervised experience in medical technology specialties, allowing students to pursue areas of interest under faculty direction. Prerequisites: permission of the program director.

MEDT 498. Clinical Research Methods. 3 Credits.
An introduction to clinical research methods to include sampling techniques, data collection and analysis, inferential statistics, multivariate analysis, hypothesis testing and research design. The student will be expected to develop a research proposal based upon a critical review of the literature. Prerequisites: STAT 130M or permission of the instructor.

MEDT 503. Management in the Clinical Setting. 3 Credits.
A course concerned with organization and management in the clinical setting including personnel supervision, planning, equipment justification, quality assurance, data processing, budgeting, fiscal techniques, marketing, regulatory agencies, educational methodologies, current issues, as well as legal and ethical considerations. (This is a writing intensive course.)

MEDT 540. Statistical Applications and Data Analysis in the Clinical Laboratory. 3 Credits.
Topics include review of basic statistics used in the laboratory; use of statistics for quality control, reference range determination, method comparisons, test utility assessment, techniques for searching the literature and assessing quality and applicability of published studies; and data organization and retrieval via queries. Students will perform projects, preferably using actual laboratory data, that relate to lecture topics.