Department of Medical Laboratory Sciences and Nutrition Science

Dr. Pejman Rahimian, Interim Department Head
Department of Medical Laboratory Sciences and Nutrition Science
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This department offers multidisciplinary professional programs in Medical Laboratory Sciences, Nutrition Science, Health Profession Technology, and Histotechnology. The mission of the department is to provide the highest standards of learning outcomes and professional growth of all students. All the respective faculties are committed to preparing competent professionals with the subject-knowledge, skills, and attitudes that contribute significantly to the health care communities and societies. Admission application is available on the university's website; however, all the laboratory programs require a program-specific-application that is available on the departmental website. The Health Profession Technology option is not a competitive admission program.

Some Degrees and Certificate Programs offered from our department are:

Medical Laboratory Sciences

- MS in Medical Laboratory Sciences (Fort Worth campus)
- BS in Medical Laboratory Sciences (Fort Worth campus)

Nutrition Science

- BS in Nutrition Science
- MS in Nutrition and Dietetics (Fort Worth campus)

Additional Professional Programs

- BAT in Health Professions Technology (On-Line)
- AAS and/or certificate in Histotechnology (Fort Worth campus)

Bachelor of Science Degree in Medical Laboratory Sciences

The last 16-months of the Medical Laboratory Sciences degree/certificate program is completed at the Department of Medical Laboratory Sciences located in Fort Worth, Texas. Department has the advanced teaching center for both lectures and laboratory courses in newly constructed university buildings along with many clinical affiliates that are located in the Dallas/Fort Worth Metroplex and surrounding areas. The MLS program is accredited by the National Accrediting Agency for Medical Laboratory Sciences (NAACLS), 5600 N. River Road, Suite 720, Rosemont, IL 60018. A continuous 16-month professional laboratory curriculum (11 months in the teaching center plus 5 months in clinical affiliate) is offered, totaling 55 semester hours.

A maximum of forty students are admitted to the MLS program in both Spring and Fall semesters every year, with application preceding deadlines of 1st September and 15th March, respectively. Admission is on a competitive merit. An overall minimum GPA of 2.5/4.00, with a minimum GPA of 2.8 in science and math, is required. NAACLS specifies that prerequisite college courses and numbers of credits required shall be those necessary to ensure admission of individuals prepared for the educational program. Prerequisite content area includes general chemistry, organic and/or biochemistry, general biological sciences, microbiology, and mathematics. Survey courses do not qualify as fulfillment of chemistry and biological science prerequisites. Developmental mathematics courses will not satisfy the mathematics requirements.

Students entering the program from other universities must fulfill the degree requirements of their institution, and that institution, for the graduation requirement, must provide a degree statement of the 55 hours awarded by Tarleton State University. By special arrangement prior to entrance, students may elect to receive the degree from their original university or from Tarleton State University. Students who have already obtained a baccalaureate degree may also enter the program, provided they have met the program's minimum prerequisite requirements. Students articulating from affiliated universities may elect to pursue a combined BS/MS MLS concentration, with the BS from the affiliated university and the MS from Tarleton. Post-baccalaureate students are also eligible for MS MLS concentration.

For additional information, please see the Master of Science in the Medical Laboratory Science catalog page.

Successful completion of courses will be determined with the maintenance of a grade of C or better in lecture, laboratory, and practicum courses. All students are admitted on a probationary status and progressive academic achievement must be maintained. The graduated student is eligible to sit for the Medical Laboratory Sciences Certification Examination offered by the American Society for Clinical Pathology.

For further information concerning the Medical Laboratory Sciences program, contact:

Allison Kelly, MS, MLS^{CM}(ASCP)SBB^{CM}, CQA (ASQ)
Instructor and MLS/MLT Program director
10850 Texan Rider Dr.
Fort Worth, Texas 76036
(682) 703-7133
akelly@tarleton.edu

General Education Requirements (https://catalog.tarleton.edu/academicaffairs/)		42
BIOL 1406	Biology for Science Majors	4
BIOL 2300	Cell Biology	3
BIOL 3407	Microbiology	4
BIOL 3485	Immunology	4
BIOL 4460	General Physiology	4
CHEM 1311 [shared]	College Chemistry I (Lecture)	
CHEM 1111 [shared]	College Chemistry I (Laboratory)	
CHEM 1312 [shared]	College Chemistry II (Lecture)	
CHEM 1112 [shared]	College Chemistry II (Laboratory)	
CHEM 2323	Organic Chemistry I	3
CHEM 2123	Organic Chemistry I Laboratory	1
CHEM 2325	Organic Chemistry II	3
CHEM 2125	Organic Chemistry II Laboratory	1
MATH 1314 [shared]	College Algebra	
MATH Elective		3

MDLS 4274	Introduction to Lab Safety and Operations	2
MDLS 4148	Introduction to Medical Genetics	1
MDLS 4276	Clinical Chemistry I Lecture	2
MDLS 4177 [WI (https://catalog.tarleton.edu/academicaffairs/)]	Clinical Chemistry I Lab	1
MDLS 4334	Medical Microbiology I Lecture	3
MDLS 4135	Medical Microbiology I Lab	1
MDLS 4364	Immunology and Serology Lecture	3
MDLS 4169	Immunology and Serology Lab	1
MDLS 4324	Hematology I Lecture	3
MDLS 4125	Hematology I Laboratory	1
MDLS 4214	Urinalysis and Body Fluids Lecture	2
MDLS 4115	Urinalysis and Body Fluids Laboratory	1
MDLS 4226	Hematology II Lecture	2
MDLS 4127	Hematology II Laboratory	1
MDLS 4336	Medical Microbiology II Lecture	3
MDLS 4137	Medical Microbiology II Lab	1
MDLS 4378	Clinical Chemistry II Lecture	3
MDLS 4179	Clinical Chemistry II Lab	1
MDLS 4175	Advanced Laboratory Automation, Statistics, and Quality Assurance Concepts	1
MDLS 4444	Immunohematology Lecture	4
MDLS 4149	Immunohematology Lab	1
MDLS 4391 [WI (https://catalog.tarleton.edu/academicaffairs/)]	Integrated Clinical Laboratory Practice and Research	2
MDLS 4292	Clinical Laboratory Practicum I	2
MDLS 4293	Clinical Laboratory Practicum II	2
MDLS 4294	Clinical Laboratory Practicum III	2
MDLS 4295	Clinical Laboratory Practicum IV	2
Total Hours		**120**

Bachelor of Science in Nutrition Science

The Bachelor of Science in Nutrition Science prepares graduates for a career in health care or community nutrition education and emphasizes:

- Health, wellness, and lifestyle habits related to food choices
- Nutrients required by the body, their food source, functions, deficiencies and toxicities
- Evidence-based medical nutrition therapy practices for disease prevention and treatment

This degree has two different concentration areas requiring 42 general credit hours and a 41-hour required program core.

Dietetics Concentration

The Dietetics concentration is an Accreditation Council for Education in Nutrition and Dietetics (ACEND) accredited Nutrition and Dietetics Didactic Program (DPD) program. This program prepares highly qualified graduates for supervised practice leading to eligibility for the CDR credentialing exam to become registered dietitian nutritionists (RDN). Dietetics track graduates will receive a verification statement at the end of the program indicating that they have met the requirements to apply for dietetic internship in preparation to become a RDN.

Food and Nutrition Concentration

The Food and Nutrition concentration incorporates food, nutrition, life science, public health, social science and social work courses to equip students with the knowledge and skills needed to educate a diverse population in the area of health and wellness. This track also provides a pathway for pre-nursing and pre-health students a way to complete a degree and enter a career in nutrition and health promotion in a timely manner.

For more information on the Nutrition Science program, contact:

Paula McKeehan, M.S., RDN, LD
NS Program Coordinator and Assistant Professor
1333 W. Washington
Stephenville, Texas 76402
(254) 968-0577

PMCKEEHAN@tarleton.edu (_PMCKEEHAN@tarleton.edu)

General Education Requirements (https://catalog.tarleton.edu/academicaffairs/) [1]		42
BIOL 2401 [shared]	Anatomy and Physiology I	
BIOL 2402 [shared]	Anatomy & Physiology II	
PSYC 2301 [shared]	General Psychology	
NUTR 1307	Principles of Interprofessional Education and Practice	3
HECO 1322	Nutrition and Diet Therapy	3
NUTR 1316	Principles of Food Preparation	3
NUTR 3321	Life Cycle Nutrition	3
NUTR 3304	Food Processing	3
NUTR 3325	Integrative Culinary Practices	3
NUTR 3339 [WI (https://catalog.tarleton.edu/academicaffairs/)]	Introduction to Medical Nutrition Therapy	3
NUTR 4335	Food and Culture	3
Microbiology		4
BIOL 2420	Microbiology for Non-Science Majors	

BIOL 3407	Microbiology	
NUTR 4080	Seminar in Nutrition Science	3
NUTR 4309 [WI (https://catalog.tarleton.edu/academicaffairs/)]	Community Nutrition	3
Total Hours		**76**

Dietetics Track

NUTR 4305	Food Service Management	3
NUTR 4325	Nutrition Counseling	3
NUTR 4339	Advanced Nutrition	3
NUTR 4349	Medical Nutrition Therapy I	3
NUTR 4379	Medical Nutrition Therapy II	3
MATH 1342	Elementary Statistical Methods	3
CHEM 1311	College Chemistry I (Lecture)	3
CHEM 1111	College Chemistry I (Laboratory)	1
Choose from the Following Course Sequence:		7-8
CHEM 1312 & CHEM 1112 & CHEM 2323 & CHEM 2123	College Chemistry II (Lecture) and College Chemistry II (Laboratory) and Organic Chemistry I and Organic Chemistry I Laboratory	
NUTR 2322 & NUTR 2452	Intermediate Human Nutrition and Scientific Principles of Clinical Nutrition	
KINE 3319	Medical Terminology	3
Electives		11-12
Total Hours		**44**

Food and Nutrition Track

Approved Electives		16
Advanced Nutrition Electives		6
Select 4 Hours of CHEM from the Following		4
CHEM 1407	Fundamentals of Chemistry	
CHEM 1311 & CHEM 1111	College Chemistry I (Lecture) and College Chemistry I (Laboratory)	
Select 18 Hours from the Following		18
PBHL 4305	Issues and Trends in Health Care	
PBHL 4310 [WI (https://catalog.tarleton.edu/academicaffairs/)]	Introduction to Health Management and Policy	
PBHL 4320	Public Health Policy	
PBHL 4350	Pathophysiology for the Health Professionals	
SOCW 3300	Methods and Skills of Interviewing	
SOCW 3303	Cross Cultural Social Work Practice	
PSYC 3301	Psychology of Learning	
PSYC 3307	The Human Lifespan	
PSYC 3303	Educational Psychology	
ANSC 4314	Food Quality Assurance	
HORT 3309	Aquaponics	
FDSC 4407	Fermentation and Brewing	
FDSC 4408	Sustainable Food Systems	
ANSC 1202	Barbeque Science	
CHFS 3333	Family Financial Management	
CNSL 3307	Introduction to Disability Studies	
MGMT 3300	Principles of Management	
MGMT 3304	Small Business Management	
MGMT 3325	Leadership	
MKTG 3312	Marketing	
MGMT 3350	Organization Behavior	
SOCI 4314	Medical and Health Care Policy	
PBHL 3310	Principles of Health Promotion and Education	
PBHL 3337	Global Health and Development	
PBHL 3350	Public Health Communication in the Digital Age	
PBHL 3382	Public Health Interventions: Strategies and Programs	
Total Hours		**44**

Bachelor of Applied Technology of Health Professions Technology

Tarleton State University, a member of the Texas A&M University System, offers the professional degree Bachelor of Applied Technology in Health Professions Technology through its Department of Medical Laboratory Sciences, Public Health, and Nutrition Science in Fort Worth, Texas.

The Bachelors of Applied Technology in Health Professions Technology is designed for the certified/licensed allied health practitioner who has earned an Associate's Degree and who desires or requires further education for professional development or personal satisfaction. This degree will give students who graduated from our Histotechnology or Medical Laboratory Technology programs, and graduates of other allied health associate degree programs, an opportunity to continue their education at Tarleton to earn a four-year degree, while applying credit from their Workforce Education (WECM) courses.

Students seeking the Bachelor of Applied Technology in Health Professions Technology degree must hold one of the following Degrees and Certification or License:

For more information on the Health Professions Technology program, contact:

Maria Artiles, HTL(ASCP)[CM]
Instructor & HT/HPT Program Director
10850 Texan Rider Dr.
Fort Worth, Texas 76036
817-926-1101
MARTILES@tarleton.edu

- AAS Medical Laboratory Technology, MLT (ASCP)
- AAS Histotechnology, HT (ASCP)
- AAS Dental Hygiene, Registered Dental Hygienist
- AAS Emergency Medical Services, EMT Paramedic or equivalent
- AAS Health Information Technology, Appropriate Certification
- AAS Physical Therapy Assistant, Licensed PTA
- AAS Radiologic Technology, Registered Radiology Technologist by American Registry of Radiology Technologists
- AAS Respiratory Care, Registered Respiratory Therapist by National Board for Respiratory Therapy and Texas Department of Health
- AAS Surgical Technology, Certified Surgical Technologist by Association of Surgical Technologists
- AAS Biotechnology (Eligible students may articulate from Temple College, Collin County College or by permission of Department Head

General Education Requirements (https://catalog.tarleton.edu/academicaffairs/) [1]		42
ENGL 1301 [shared] [WI (https://catalog.tarleton.edu/academicaffairs/)]	Composition I	
ENGL 1302 [shared] [WI (https://catalog.tarleton.edu/academicaffairs/)]	Composition II	
COMM 2302 [shared]	Business and Professional Speaking [1]	
Choose one of the following [shared]:		
PSYC 2301 [shared]	General Psychology	
SOCI 1301 [shared]	Introductory Sociology	
HPTC 3320	Biotechnology and Bioethics	3
HPTC 3350	Microbiology for Allied Health Professionals	3
HPTC 4304	Health Care Management	3
HPTC 4305 [WI (https://catalog.tarleton.edu/academicaffairs/)]	Issues and Trends in Health Care	3
HPTC 4349	Pharmacology for the Allied Health Professionals	3
HPTC 4350	Pathophysiology for the Health Professionals	3
MDLS 4360	Introduction to Clinical Immunology	3
SOCI 4314	Medical and Health Care Policy	3
ENGT 3320	Industrial Safety	3
ENGL 3309 [WI (https://catalog.tarleton.edu/academicaffairs/)]	Professional Writing	3
Select 15 hours of the following:		15
BCIS 3315	Web Development	
COMM 4304	Organizational Communication	
BLAW 4334	Employment Law	
MATH 3450	Principles of Bio-Statistics	
MGMT 3350	Organization Behavior	
MGMT 3325	Leadership	
MGMT 3302	Human Resource Management	
PSYC 3301	Psychology of Learning	
PSYC 3303	Educational Psychology	
PSYC 3311	Behavior Analysis and Behavior Management	
Credit for Prior Learning Component:		
Credit for Prior Learning		33
Total Hours		**120**

Associate of Applied Science in Histotechnology

The AAS in Histotechnology requires a total of 60 credit hours consisting of 23 credit hours of prerequisites, and 37 credit hours of technical program courses. Prerequisite courses may be taken at the university or any one of the thirteen consortium community colleges. The sophomore courses comprising the technical program will be taken in Fort Worth at the Schaffer Building and affiliated clinical hospital sites. Upon successful completion of the 60-hour program, students are eligible for the AAS Degree in Histotechnology awarded from Tarleton State University.

This program is accredited by the National Accrediting Agency for Medical Laboratory Sciences (NAACLS), 5600 N. River Road, Suite 720, Rosemont, IL 60018, (773) 714-8880. Successful completion of the program will require a grade of “C” or better in all lecture and laboratory courses and a grade of “P” in all clinical practicum courses. After successful completion of the program students are eligible for the Histotechnician exam administered by the American Society for Clinical Pathology (ASCP) Board of Registry.

Acceptance into the Histotechnology program is on a competitive basis through an evaluation based on letters of recommendation and academic performance. Students must successfully complete prerequisites before the start of the technical program. Applications may be obtained on the program's website at https://www.tarleton.edu/medicallab. Students are accepted into the program three times a year to begin in either August, January or May. Application deadlines are listed on the application.

Students entering with an associate or baccalaureate degree, and who do not wish to earn the AAS in Histotechnology degree, must have the following prerequisites:

- Biology: 8 hours including Microbiology
- Chemistry: 4 hours
- Math: 3 hours
- English: 3 hours

For more information on the Histotechnology Program, contact:

Maria Artiles, HTL(ASCP)[CM]
Instructor & HT/HPT Program Director
10850 Texan Rider Dr.
Fort Worth, Texas 76036
817-926-1101
MARTILES@tarleton.edu

Required Histotechnology Courses to be taken in Fort Worth and affiliated clinical sites: [1]

ENGL 1301 [WI (https://catalog.tarleton.edu/academicaffairs/)]	Composition I	3
PSYC 2301	General Psychology	3
MATH 1314	College Algebra	3
Creative Arts or Language, Philosophy and Culture Elective		3
BIOL 2402	Anatomy & Physiology II	4
HPTC 3350	Microbiology for Allied Health Professionals	3
CHEM 1407	Fundamentals of Chemistry	4
HLAB 2182	Introduction to Medical Labratory Sciences [2]	1
HLAB 2414	Introduction to Histotechnology	4
HLAB 2415	Histotechnology I	4
HLAB 2425	Histotechnology II	4
HLAB 2335	Histotechnology III	3
HLAB 2460	Functional Histology	4
HLAB 2364	Immunohistochemistry and Molecular Techniques	3
HLAB 2285	Capstone Cases and Review [4]	2
HLAB 2495	Clinical Histotechnology I [2]	4
HLAB 2496	Clinical Histotechnology II [3]	4
HLAB 2497	Clinical Histotechnology III [4]	4
Total Hours		**60**

Master of Science in Medical Laboratory Sciences

The Master of Science in Medical Laboratory Sciences offers students either a non-thesis track with two concentrations (Molecular Diagnostics and MLS ASCP Certification) or a thesis track with a concentration in Molecular Diagnostics. The program accepts new classes in Spring and Fall with deadlines of September 1st and May 1st, respectively. Upon successful completion of the program, students with Molecular Diagnostic concentrations are eligible to sit for the Molecular Biology Board of Certification exam through the American Society for Clinical Pathology (ASCP). Students with MLS Certification concentration are eligible to sit for the Medical Laboratory Science Certification exam through the ASCP. This program is accredited by the National Accrediting Agency for Medical Laboratory Sciences (NAACLS), 5600 N. River Road, Suite 720, Rosemont, IL 60018, (773) 714-8880.

Admission to either the Molecular Diagnostics thesis or non-thesis tracks of the M.S. in Medical Laboratory Sciences requires:

- Application and approval of the MS in MLS Admissions Committee
- Admission to the Graduate School
- One of the following:
  - Professional certification in one of the following areas:
    - MLS/MT (ASCP)
    - HTL (ASCP)
    - CT (ASCP)
    - CG (ASCP)
    - ASCP Specialist certification including:
      - SM
      - SC
      - SH
      - SBB
  - Bachelor of Science in:
    - Biology
    - Biochemistry
    - Molecular Biology
    - Microbiology
    - Related Field[1]

Admission to the MS in MLS ASCP Certification track requires application to the MLS undergraduate program. Qualified applicants will have been accepted into the BS/ MLS certificate program and have successfully completed the introductory portion of the MLS program.

[1] With a minimum of 16 credit hours in biology (including microbiology, immunology, molecular biology), 16 credit hours in chemistry (including 8 hours in inorganic chemistry and 8 hours of organic chemistry or 4 hours organic chemistry and 4 hours biochemistry), approval of the Program Director and admission to the Graduate school.

Applications, deadlines and additional information may be found at www.tarleton.edu/medicallab (http://www.tarleton.edu/medicallab)

MDLS 5101	CLS Literature Review Seminar	1
MDLS 5174	Intro Lab Safety and Operations	1
MDLS 5202	Molecular Diagnostics	2
MDLS 5220	Medical Genetics	2
MDLS 5330	Medical Biochemistry	3
MDLS 5450	Molecular Diagnostics Techniques I [2]	4
MDLS 5451	Molecular Diagnostics Techniques II [3]	4
MDLS 5244	Applications in Molecular Diagnostics I [2]	2
MDLS 5245	Applications in Molecular Diagnostics II [4]	2
MDLS 5206	Laboratory Management	2
MDLS 5298	Statistical Methods for Healthcare Research	2
MDLS 5099	Practicum, Field Problem, or Internship [1]	1-3
Total Hours		**28**

Molecular Diagnostics Non-Thesis

MDLS 5086	Clinical Laboratory Science Problems	2
Total Hours		**2**

Molecular Diagnostics Thesis

MDLS 5088	Thesis	6
Total Hours		**6**

Master of Science in Medical Laboratory Sciences with Certification

The Master of Science in Medical Laboratory Sciences with Certification offers students a non-thesis track within the Medical Laboratory Sciences program. The program accepts new classes in Spring and Fall with deadlines of September 1st and May 1st, respectively. Upon successful completion of the program, students are eligible to sit for the Medical Laboratory Science (MLS) Board of Certification exam through the American Society for Clinical Pathology. This program is accredited by the National Accrediting Agency for Medical Laboratory Sciences (NAACLS), 5600 N. River Road, Suite 720, Rosemont, IL 60018, (773) 714-8880.

Admission to the MS in MLS ASCP Certification track requires application to the MLS undergraduate program. Qualified applicants will have been accepted into the BS/ MLS certificate program and have successfully completed the introductory portion of the MLS program.

Undergraduate Coursework		23
MDLS 5226	Hematology II Lecture	2
MDLS 5127	Hematology II Lab	1
MDLS 5336	Medical Microbiology II Lecture	3
MDLS 5378	Clinical Chemistry II Lecture	3
MDLS 5179	Clinical Chemistry II Lab	1
MDLS 5444	Immunohematology Lecture	4
MDLS 5149	Immunohematology Lab	1
MDLS 5202	Molecular Diagnostics	2
MDLS 5204	Clinical Correlations and Capstone Review	2
MDLS 5206	Laboratory Management	2
MDLS 5091	Integrated Clinical Laboratory Science and Research	2
MDLS 5292	Clinical Laboratory Practicum I	2
MDLS 5293	Clinical Laboratory Practicum II	2
MDLS 5294	Clinical Laboratory Practicum III	2
MDLS 5295	Clinical Cytogenetics Pract I,Clinical Laboratory Practicum IV	2
Total Hours		**54**

Master of Science in Nutrition and Dietetics

Practicum Requirement		4
NUTR 5182	Supervised Practicum in Nutrition and Dietetics	
NUTR 5280	Graduate Nutrition Science Seminar	2
NUTR 5307	Integrative and Functional Nutrition	3
NUTR 5308	Nutrigenomics in Health and Disease	3
NUTR 5309	Advanced Community Nutrition	3
NUTR 5310	Research Methods in Nutrition and Dietetics	3
NUTR 5325	Nutrition Counseling and Health Literacy	3
NUTR 5349	Advanced Medical Nutrition Therapy I	3
NUTR 5378	Nutrition in Sports and Exercise	3
NUTR 5379	Advanced Medical Nutrition Therapy II	3
NUTR 5405	Food Service Management	4

or NUTR 5406	Culinary Medicine	
Total Hours		**34**

Medical Laboratory Sciences Courses

MDLS 1111. Surv Allied Health Prof. 1 Credit Hour (Lecture: 1 Hour, Lab: 0 Hours).
Course description is needed.

MDLS 4086. Clinical Laboratory Science Problems. 1-3 Credit Hours (Lecture: 0 Hours, Lab: 1-3 Hours).
A course open by invitation to capable Clinical Laboratory Science students who wish to pursue a selected problem study. Students are permitted and encouraged to work independently under the guidance of an instructor. May be repeated for credit, subject to the approval of the department head. Lab fee: $2.

MDLS 4091. Integrated Clinical Laboratory Practice and Research. 1-3 Credit Hours (Lecture: 0 Hours, Lab: 5-15 Hours). [WI (https://catalog.tarleton.edu/academicaffairs/)]
An integrated clinical laboratory course designed to introduce the concepts of specimen tracking and processing using a laboratory information system, test result utilization, utilization review, and clinical research. Emphasis will be placed on workload organization; quality control evaluation accuracy; consistency; validity of results generated; and appropriate reporting of results. Lab fee: $2.

MDLS 4092. Clinical Laboratory Practicum I. 1-5 Credit Hours (Lecture: 0 Hours, Lab: 5-40 Hours).
Structured clinical experience directed toward development of laboratory skills, organizing work, and solving problems in hematology, hemostasis, and body fluid analysis. Emphasis is placed on the analysis of quality assurance data and application of laboratory information systems and automation. Grading in this course is satisfactory/unsatisfactory.

MDLS 4093. Clinical Laboratory Practicum II. 1-5 Credit Hours (Lecture: 0 Hours, Lab: 8-40 Hours).
Structured clinical experience directed toward development of laboratory skills, organizing work, and solving problems in medical microbiology and parasitology. Emphasis is placed on the analysis of quality assurance data and application of laboratory information systems and automation. Grading in this course is satisfactory/unsatisfactory.

MDLS 4094. Clinical Laboratory Practicum III. 1-5 Credit Hours (Lecture: 0 Hours, Lab: 8-40 Hours).
Structured clinical experience directed toward development of laboratory skills, organizing work, and solving problems in immunology, serology, and blood banking. Emphasis is placed on the analysis of quality assurance data and application of laboratory information systems and automation. Grading in this course is satisfactory/unsatisfactory.

MDLS 4095. Clinical Laboratory Practicum IV. 1-5 Credit Hours (Lecture: 0 Hours, Lab: 8-40 Hours).
Structured clinical experience directed toward development of laboratory skills, organizing work and solving problems in clinical chemistry, toxicology, and molecular pathology. Emphasis is placed on the analysis of quality assurance data and application of laboratory information systems and automation. Grading in this course is satisfactory/unsatisfactory.

MDLS 4096. Advanced Clinical Practicum. 1-8 Credit Hours (Lecture: 0 Hours, Lab: 3-24 Hours).
Structured clinical experience directed toward development of laboratory skills, organizing work, and solving problems in the clinical laboratory. Emphasis is given to high complexity testing. Grading in this course is satisfactory/unsatisfactory.

MDLS 4104. Clinical Correlations and Capstone Review Specialty. 1 Credit Hour (Lecture: 1 Hour, Lab: 0 Hours).
This course employs an integrative approach to laboratory medicine with emphasis on the review of patient cases and appropriate utilization of laboratory tests in diagnosis and case management. A comprehensive review and assessment of the concepts in a specialty area of medical laboratory medicine. Prerequisite: Acceptance to Public Health Microbiology Categorical Certification program.

MDLS 4115. Urinalysis and Body Fluids Laboratory. 1 Credit Hour (Lecture: 0 Hours, Lab: 4 Hours).
Supervised learning experiences using microscopic, chemical, and automated techniques in analysis of urine, synovial, seminal, cerebrospinal, serous, and amniotic fluid.

MDLS 4125. Hematology I Laboratory. 1 Credit Hour (Lecture: 0 Hours, Lab: 4 Hours).
Supervised experiences with emphasis placed on the enumeration, morphology and staining characteristics of normal blood cells as well as analytes to evaluate coagulation and fibrinolysis. Manual and automated techniques will be used. Emphasis will be placed on specimen collection, processing, and generation and evaluation of diagnostic data.

MDLS 4127. Hematology II Laboratory. 1 Credit Hour (Lecture: 0 Hours, Lab: 4 Hours).
Supervised experiences with emphasis placed on the enumeration, morphology, and staining characteristics of abnormal blood cells. Emphasis will be placed on specimen processing and generation and evaluation of diagnostic data. Prerequisite: Co-Requisite: MDLS 4226 or approval of department head Lab fee: $2.

MDLS 4128. Hemostasis. 1 Credit Hour (Lecture: 1 Hour, Lab: 2 Hours).
Discussion and comparison of the hemostatic coagulation and fibrinolytic systems with emphasis on normal and abnormal physiology. Supervised learning experiences with emphasis on analytes to evaluate coagulation and fibrinolysis. Manual and automated techniques will be discussed and used.

MDLS 4135. Medical Microbiology I Lab. 1 Credit Hour (Lecture: 0 Hours, Lab: 4 Hours).
Supervised experience with emphasis on isolation, staining, culture, and differential biochemical characteristics of pathogenic microorganisms and human parasites. Specimen collection, processing and criteria for rejection will also be addressed. Emphasis will be placed on deriving diagnostic laboratory results and evaluation of those results.

MDLS 4137. Medical Microbiology II Lab. 1 Credit Hour (Lecture: 0 Hours, Lab: 4 Hours).
Supervised experience with emphasis on staining, isolation, identification, and antimicrobial susceptibility testing of microorganisms isolated from clinical specimens. Emphasis is also placed on specimen processing and generation and evaluation of diagnostic data. Prerequisite: Students must be admitted into the Medical Laboratory Sciences Master of Science program; Concurrent registration with MDLS 4336. Lab fee: $2.

MDLS 4148. Introduction to Medical Genetics. 1 Credit Hour (Lecture: 1 Hour, Lab: 0 Hours).
An introduction to the concepts of gene structure and inheritance patterns. Emphasis will be placed on the types of inheritance patterns associated with different disease conditions in which clinical diagnostics plays a valuable role in disease diagnosis or patient counseling.

MDLS 4149. Immunohematology Lab. 1 Credit Hour (Lecture: 0 Hours, Lab: 4 Hours).
Supervised experiences related to blood grouping and typing and compatibility testing, antibody detection and identification, incompatibility and transfusion reaction resolution; component processing and storage; and selection for therapy. Emphasis is placed on specimen processing, laboratory techniques, and generation and evaluation of diagnostic data.

MDLS 4169. Immunology and Serology Lab. 1 Credit Hour (Lecture: 0 Hours, Lab: 4 Hours).
Supervised learning experience with emphasis on the detection, identification, and characterization of antigens and antibodies involved in autoimmune disease and infectious etiology using serologic techniques. Also emphasis on cells involved in cellular immunity using immunologic techniques, specimen processing and generation and evaluation of diagnostic data.

MDLS 4174. Introduction to Laboratory Safety and Instrumentation. 1 Credit Hour (Lecture: 1 Hour, Lab: 2 Hours).
Introduction to the theories and principles of instrument operation and safety practices commonly used in the clinical laboratory. Supervised learning experience in instrument operation and troubleshooting.

MDLS 4175. Advanced Laboratory Automation, Statistics, and Quality Assurance Concepts. 1 Credit Hour (Lecture: 1 Hour, Lab: 0 Hours).
Discussion and comparison of operating principles of automated analyzers, complex laboratory techniques, statistical methods and quality assurance concepts applicable to the clinical laboratory. Supervised learning experience in instrument operation, troubleshooting, electrophoresis and chromatography. Application of statistics to quality assurance and evaluation of laboratory results will be discussed.

MDLS 4177. Clinical Chemistry I Lab. 1 Credit Hour (Lecture: 0 Hours, Lab: 4 Hours). [WI (https://catalog.tarleton.edu/academicaffairs/)]
Supervised learning experiences with emphasis on manual, semi-automated, and automated procedures for assaying electrolytes, blood gases, carbohydrates, lipids, proteins, and drugs. Emphasis is placed on specimen processing and generation and evaluation of diagnostic data. Lab fee: $2.

MDLS 4179. Clinical Chemistry II Lab. 1 Credit Hour (Lecture: 0 Hours, Lab: 4 Hours).
Supervised learning experiences with emphasis on manual, semi-automated, and automated procedures for assaying metabolites, drugs, enzymes, hormones, and tumor markers. Emphasis is placed on specimen selection, processing, analyses, and evaluation of diagnostic data. Prerequisite: Students must be admitted into the Medical Laboratory Sciences Master of Science program. Co-requisite MDLS 4378. Lab fee: $2.

MDLS 4202. Molecular Diagnostics. 2 Credit Hours (Lecture: 2 Hours, Lab: 0 Hours).
An overview of molecular mechanisms including replication, transcription, and translation. Emphasis is placed on the principles of molecular methods and their application in diagnosis of microbiologic, immunologic, genetic, endocrine, hematopoietic, and metabolic disease.

MDLS 4204. Clinical Correlations and Capstone Review Speciality. 2 Credit Hours (Lecture: 2 Hours, Lab: 0 Hours).
This course employs an integrative approach to laboratory medicine with emphasis on the review of patient cases and appropriate utilization of laboratory tests in diagnosis and case management. A comprehensive review and assessment of the concepts in a specialty area of medical laboratory medicine.

MDLS 4214. Urinalysis and Body Fluids Lecture. 2 Credit Hours (Lecture: 2 Hours, Lab: 0 Hours).
Discussion in renal physiology, relationship to renal and other systemic diseases, physiologic function and pathophysiology of synovial, seminal, cerebrospinal, serous, and amniotic fluid.

MDLS 4226. Hematology II Lecture. 2 Credit Hours (Lecture: 2 Hours, Lab: 0 Hours).
Studies on the formation and identification of abnormal cellular blood elements are discussed. Emphasis is placed on abnormal physiology and hematologic manifestations of disease. Prerequisite: MDLS 4324 and concurrent registration with MDLS 4127.

MDLS 4274. Introduction to Lab Safety and Operations. 2 Credit Hours (Lecture: 2 Hours, Lab: 1 Hour).
Introduction to the theories and principles of instrument operation and safety practices commonly used in the clinical laboratory. Supervised learning experience in instrument operation and troubleshooting and the use of computers in the scientific and medical fields.

MDLS 4276. Clinical Chemistry I Lecture. 2 Credit Hours (Lecture: 2 Hours, Lab: 0 Hours).
An introduction to the theories and principles of diagnostic methods used to measure common analytes involved in water and acid base balance, mineral and metabolic homeostasis in serum and other body fluids. Normal physiology and biochemical manifestation of disease are emphasized. Co-requisite : MDLS 4177.

MDLS 4292. Clinical Laboratory Practicum I. 2 Credit Hours (Lecture: 0 Hours, Lab: 5-40 Hours).
Structured clinical experience directed toward developing laboratory skills, organizing work, and solving problems in hematology, hemostasis, and body fluid analysis. Emphasis is placed on the analysis of quality assurance data and the application of laboratory information systems and automation. Grading in this course is Pass/Fail.

MDLS 4293. Clinical Laboratory Practicum II. 2 Credit Hours (Lecture: 0 Hours, Lab: 5-40 Hours).
Structured clinical experience directed toward developing laboratory skills, organizing work, and solving problems in medical microbiology and parasitology. Emphasis is placed on the analysis of quality assurance data and the application of laboratory information systems and automation. Grading in this course is Pass/Fail.

MDLS 4294. Clinical Laboratory Practicum III. 2 Credit Hours (Lecture: 0 Hours, Lab: 5-40 Hours).
Structured clinical experience directed toward developing laboratory skills, organizing work, and solving problems in immunology, serology, and blood banking. Emphasis is placed on the analysis of quality assurance data and the application of laboratory information systems and automation. Grading in this course is Pass/Fail.

MDLS 4295. Clinical Laboratory Practicum IV. 2 Credit Hours (Lecture: 0 Hours, Lab: 5-40 Hours).
Structured clinical experience directed toward developing laboratory skills, organizing work, and solving problems in clinical chemistry, toxicology, and molecular pathology. Emphasis is placed on the analysis of quality assurance data and the application of laboratory information systems and automation. Grading in this course is Pass/Fail.

MDLS 4324. Hematology I Lecture. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).
Discussion of the formation, function, physiology, and identification of normal blood cellular elements in all ages and hemostatic coagulation and fibrinolytic systems with emphasis on normal and abnormal physiology.

MDLS 4334. Medical Microbiology I Lecture. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).
Discussion of pathology, growth characteristics, morphology, physiology, and identification criteria of human pathogenic microorganisms, normal flora and parasites causing disease in humans. Opportunistic parasites in the immunocompromised host will also be addressed.

MDLS 4336. Medical Microbiology II Lecture. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).
Discussion of advanced microbiological concepts including anaerobic bacteria, mycobacterium, antimicrobial susceptibility, mycology, virology, and infections by organ system. Emphasis is on epidemiology, pathogenesis, source of isolation, and conventional and molecular methods of diagnosis of human pathogenic organisms. Prerequisite: Students must be admitted into the Medical Laboratory Sciences Master of Science program. Co-requisite MDLS 4137.

MDLS 4360. Introduction to Clinical Immunology. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).
Discussion of immunological mechanisms fundamental to resistance to disease. Emphasis is placed on the basic humoral and cellular immune response and resistance to microbial disease with particular attention to medical laboratory assay principles.

MDLS 4364. Immunology and Serology Lecture. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).
Discussion of immunological mechanisms fundamentals to resistance to disease including basic humoral and cellular immune responses, mechanisms and pathogenesis involved in microbial, autoimmune, allergic, and immunodeficient disease.

MDLS 4378. Clinical Chemistry II Lecture. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).
Discussion and comparison of diagnostic methods employed in the clinical chemistry laboratory. Emphasis is placed on diagnostic metabolites, enzymology, endocrinology,tumor markers, and advanced methods and technologies. Normal physiology and biochemical manifestations of disease are discussed. Prerequisite: Students must be admitted into the Medical Laboratory Sciences Master of Science program. Co-requisite MDLS 4179.

MDLS 4391. Integrated Clinical Laboratory Practice and Research. 1-3 Credit Hours (Lecture: 0 Hours, Lab: 5-15 Hours). [WI (https://catalog.tarleton.edu/academicaffairs/)]
An integrated clinical laboratory course designed to introduce the concepts of specimen tracking and processing using a laboratory information system, test result utilization, utilization review, and clinical research. Emphasis will be placed on workload organization; quality control evaluation accuracy; consistency; validity of results generated; and appropriate reporting of results. Lab fee: $2.

MDLS 4444. Immunohematology Lecture. 4 Credit Hours (Lecture: 4 Hours, Lab: 0 Hours).
Discussion of the principles of immunohematology in relation to blood grouping, typing, compatibility testing, and antibody detection and identification, transfusion and transplant medicine, donor processing, and component preparation and storage.

MDLS 4592. Clinical Laboratory Practicum I. 1-5 Credit Hours (Lecture: 0 Hours, Lab: 5-40 Hours).
Structured clinical experience directed toward development of laboratory skills, organizing work, and solving problems in hematology, hemostasis, and body fluid analysis. Emphasis is placed on the analysis of quality assurance data and application of laboratory information systems and automation. Grading in this course is satisfactory/unsatisfactory.

MDLS 4593. Clinical Laboratory Practicum II. 1-5 Credit Hours (Lecture: 0 Hours, Lab: 8-40 Hours).
Structured clinical experience directed toward development of laboratory skills, organizing work, and solving problems in medical microbiology and parasitology. Emphasis is placed on the analysis of quality assurance data and application of laboratory information systems and automation. Grading in this course is satisfactory/unsatisfactory.

MDLS 4594. Clinical Laboratory Practicum III. 1-5 Credit Hours (Lecture: 0 Hours, Lab: 8-40 Hours).
Structured clinical experience directed toward development of laboratory skills, organizing work, and solving problems in immunology, serology, and blood banking. Emphasis is placed on the analysis of quality assurance data and application of laboratory information systems and automation. Grading in this course is satisfactory/unsatisfactory.

MDLS 4595. Clinical Laboratory Practicum IV. 1-5 Credit Hours (Lecture: 0 Hours, Lab: 8-40 Hours).
Structured clinical experience directed toward development of laboratory skills, organizing work and solving problems in clinical chemistry, toxicology, and molecular pathology. Emphasis is placed on the analysis of quality assurance data and application of laboratory information systems and automation. Grading in this course is satisfactory/unsatisfactory.

MDLS 4896. Advanced Clinical Practicum. 1-8 Credit Hours (Lecture: 0 Hours, Lab: 3-24 Hours).
Structured clinical experience directed toward development of laboratory skills, organizing work, and solving problems in the clinical laboratory. Emphasis is given to high complexity testing. Grading in this course is satisfactory/unsatisfactory.

Medical Laboratory Technician Courses

MLAB 2182. Introductory Skills for Medical Laboratory Science. 1 Credit Hour (Lecture: 1 Hour, Lab: 0 Hours).
An introductory course in the medical laboratory sciences program that includes basic laboratory safety practices, computer applications, lab mathematics, quality control and basic laboratory equipment. This course must be taken during the first semester of enrollment on the MLT and HT certification programs.

MLAB 2193. MLT Field Practicum III. 1 Credit Hour (Lecture: 0 Hours, Lab: 7 Hours).
Structured supervised work-based instruction that helps students gain practical experience, enhance skills and integrate knowledge in microbiology.

MLAB 2194. MLT Field Practicum I. 1 Credit Hour (Lecture: 0 Hours, Lab: 7 Hours).
Structured supervised work-based instruction that helps students gain practical experience, enhance skills and integrate knowledge in blood bank, serology and automation.

MLAB 2195. MLT Field Practicum II. 1 Credit Hour (Lecture: 0 Hours, Lab: 7 Hours).
Structured supervised work-based instruction that helps students gain practical experience, enhance skills and integrate knowledge in chemistry.

MLAB 2214. Introduction to Urinalysis. 2 Credit Hours (Lecture: 1 Hour, Lab: 2 Hours).
An introduction to urinalysis and body fluid analysis, including the anatomy and physiology of the kidney, and physical, chemical and microscopic examination of urine, cerebrospinal fluid, and other body fluids. Lab fee: $2.

MLAB 2228. Coagulation. 2 Credit Hours (Lecture: 1 Hour, Lab: 2 Hours).
A course in coagulation theory, procedures, and practical applications. Includes laboratory exercises which rely on commonly performed manual and semi-automated methods.

MLAB 2285. Advanced Topics and Capstone Review. 2 Credit Hours (Lecture: 2 Hours, Lab: 0 Hours).
This course examines the integration of all areas/concepts of the laboratory and correlates laboratory test data with diagnostic applications and pathophysiology using critical thinking skills. This course includes a capstone examination and may only be taken during the last semester of the MLT/HT programs.

MLAB 2292. MLT Field Practicum IV. 2 Credit Hours (Lecture: 0 Hours, Lab: 14 Hours).
Structured, supervised work-based instruction that helps students gain practical experience, enhance skills and integrate knowledge in hematology, coagulation and urinalysis.

MLAB 2364. Introduction to Immunology-Serology. 3 Credit Hours (Lecture: 2 Hours, Lab: 4 Hours).
An introduction to the theory and application of basic immunology, including the immune response, principles of antigen-antibody reactions, and principles and techniques of serologic procedures. Lab fee: $2.

MLAB 2424. Introduction to Hematology. 4 Credit Hours (Lecture: 3 Hours, Lab: 4 Hours).
Introduction to the theory and practical application of routine procedures, both manual and automated. Red blood cell and white blood cell physiology, morphology (normal and abnormal), maturation sequences and associated diseases are included. Lab fee: $2.

MLAB 2444. Introduction to Immunohematology. 4 Credit Hours (Lecture: 3 Hours, Lab: 4 Hours).
A study of blood group antigens and antibodies. Performance of routine blood banking procedures, including blood group and Rh typing, antibody screens, antibody identification, cross matching, elution and absorption techniques. Lab fee: $2.

MLAB 2474. Laboratory Operations. 4 Credit Hours (Lecture: 3 Hours, Lab: 2 Hours).
An intermediate course in the clinical laboratory sciences that includes the principles of laboratory instrumentation and automation, quality control concepts, point of care testing and phlebotomy. Supervised laboratory experiences in instrument operation, calibration and maintenance, and point of care testing and phlebotomy. Lab fee: $2.

MLAB 2534. Introduction of Medical Microbiology. 5 Credit Hours (Lecture: 4 Hours, Lab: 4 Hours).
Instruction in the theory, practical application and pathogenesis of clinical microbiology, including specimen collection, processing, identification, susceptibility testing and reporting procedures. Lab fee: $2.

MLAB 2576. Introduction to Clinical Chemistry. 5 Credit Hours (Lecture: 4 Hours, Lab: 4 Hours).
An introduction to the principles and procedures of various tests performed in clinical chemistry. Presents the physiological basis for the test, the principle and procedure for the test and the clinical significance of the test results including quality control and normal values. Also includes basic chemical laboratory techniques and safety for electrolytes, acid-base balance, proteins, carbohydrates, lipids, enzymes, metabolites, endocrine function, therapeutic drug monitoring, and toxicology. Lab fee: $2.

Nutrition Courses

NUTR 1307. Principles of Interprofessional Education and Practice. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).
Introduction to the field of nutrition and dietetics including history of the profession, education, preparation, and roles and responsibilities of various health care practitioners. Practice settings, ethics of professional conduct, professionalism, evidence-based practice, interprofessional teamwork and issues in rural health care will also be explored.

NUTR 1316. Principles of Food Preparation. 3 Credit Hours (Lecture: 2 Hours, Lab: 3 Hours).
Study of food, food composition, and scientific principles involved in food preparation. Can receive credit for either NUTR 1316 or FDSC 1316.

NUTR 2322. Intermediate Human Nutrition. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).
This course explores the fundamental principles of nutrition science, including the biochemical and physiological processes that influence nutrient metabolism, human health, and disease prevention. Students will examine macronutrients, micronutrients, metabolism, genetics, and nutrition research methodologies while applying evidence-based practices to real-world case studies. Prerequisite: HECO 1322.

NUTR 2452. Scientific Principles of Clinical Nutrition. 4 Credit Hours (Lecture: 3 Hours, Lab: 2 Hours).
This course provides a comprehensive foundation in nutrition science, examining the biochemical, physiological, and public health aspects of nutrition. Students will explore macronutrients, micronutrients, digestion, metabolism, genetics, food science, clinical nutrition, and global health issues through interactive assignments and laboratory exercises. By applying scientific methods and evidence-based principles, students will develop a deeper understanding of how nutrition impacts individual and population health. Prerequisite: NUTR 2322 or concurrent enrollment.

NUTR 3304. Food Processing. 3 Credit Hours (Lecture: 2 Hours, Lab: 3 Hours).
A study of the world food supply, trends and traditions in diet and food, sanitation, safety, security, and biotechnology, and the impact of food processing on diet quality.

NUTR 3321. Life Cycle Nutrition. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).
Explores in depth the contribution that diet and nutrition make to support growth and the development process throughout the life cycle. Examines the distinct set of nutritional priorities for each stage of the life cycle with a focus on health promotion and disease prevention as underlying lifetime goals. Prerequisite: WSES 1322 or HECO 1322.

NUTR 3325. Integrative Culinary Practices. 3 Credit Hours (Lecture: 2 Hours, Lab: 3 Hours).
Fundamentals of nutrition and food preparation in all types of meal service. Special emphasis on nutritionally sound meals, meal plans, special dietary needs, and money management. Prerequisite: HECO 1322.

NUTR 3339. Introduction to Medical Nutrition Therapy. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours). [WI (https://catalog.tarleton.edu/academicaffairs/)]
Physiological basis and application of medical nutrition therapy using the nutrition care process as related to specific health conditions. Medical terminology, nutrition assessment techniques and case studies. Prerequisite: HECO 1322.

NUTR 4080. Seminar in Nutrition Science. 2-4 Credit Hours (Lecture: 2 Hours, Lab: 4 Hours).
Comprehensive and integrated application of knowledge and skills acquired in the food and nutrition program in a practical setting. Designed to provide students with skills of synthesizing and presenting the results of lower-division work. Prerequisite: Approval of instructor.

NUTR 4305. Food Service Management. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).
Principles of management applied to food service systems including restaurants and institutions.

NUTR 4309. Community Nutrition. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours). [WI (https://catalog.tarleton.edu/academicaffairs/)]
Overview of techniques and procedures for collecting, recording, analyzing and interpreting data for nutritional assessment; program development and presentation techniques for application to individuals and community groups. Prerequisite: NUTR 3339.

NUTR 4325. Nutrition Counseling. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).
Nutrition counseling and interventions in the nutrition care process; communication skills and application for prevention and treatment of nutrition-related disease states. Prerequisite: NUTR 3339.

NUTR 4335. Food and Culture. 3 Credit Hours (Lecture: 2 Hours, Lab: 3 Hours).
Food beliefs and practices of population groups around the world. Nutritional implications of various lifestyle practices, resulting health issues, and recommended dietary changes will also be explored.

NUTR 4339. Advanced Nutrition. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).
This course explores the biochemical foundations of human nutrition, focusing on the chemistry, digestion, absorption, transport, regulation, function, and metabolism of macronutrients and micronutrients. Students will examine how dietary intake influences intermediary metabolism and contributes to both health and disease development. Emphasis is placed on understanding nutrient interactions at the cellular and molecular levels, including hormonal regulation and enzymatic pathways. The course also introduces emerging fields such as nutrigenomics and nutrigenetics, highlighting how genetic variation affects nutrient metabolism and individual responses to dietary patterns. Through integrated lectures and case-based discussions, students will develop a foundational understanding of the biochemical mechanisms that support evidence-based nutrition practice. Prerequisites: NUTR 4349 and (CHEM 2323 and CHEM 2123 or NUTR 2452) with minimum grade of C.

NUTR 4349. Medical Nutrition Therapy I. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).
Study of the physiological basis and application of medical nutrition therapy using the nutrition care process to nutrition support, metabolic stress, disorders of energy imbalance, hypertension, cardiovascular disease, and a variety of gastrointestinal disorders encountered in the clinical setting. Prerequisites: NUTR 3339, BIOL 2401 and 2402; MATH 1342 or PBHL 3320.

NUTR 4379. Medical Nutrition Therapy II. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).
Study of the physiological basis and application of medical nutrition therapy using the nutrition care process to diabetes, renal disease, liver disease, cancer, and HIV as encountered in the clinical setting. Prerequisite: NUTR 4349.