

# Grayson College Course Catalog

## Overview

The Medical Laboratory Technology program prepares the student, by formal instruction and clinical experience, to perform laboratory procedures that aid physicians, pathologists and other healthcare providers, in the diagnosis and treatment of disease in the hospital, clinic or research laboratory. Upon completion of the program, students receive an Associate of Applied Science Degree and are eligible to take the national certification exams.

**If you are interested in obtaining a phlebotomy certificate only, please click on the certificate tab above.**

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## Specific Program Requirements

1. Science courses must have been completed within the past five (5) years. Exceptions may be made by the Medical Laboratory Technology (MLT) Program Director.
2. Students must complete all MLAB courses within a three year period in order to graduate.

This program prepares the medical laboratory technician by formal instruction and clinical experience to perform laboratory procedures which aid physicians and pathologists in the diagnosis and treatment of disease in the hospital, clinic, or research laboratory.

Upon completion of this program, students receive an Associate of Applied Science Degrees and may be eligible to take national certification examinations such as that administered by the American Society for Clinical Pathology (ASCP) Board of Certification.

## Admission Information

The entry date for the MLT program is generally the fall semester of each year, but arrangements can sometimes be made for a spring entry also. An alternative curriculum sequence may be arranged for students having completed academic requirements other than MLAB courses. For fall entry, applications should be submitted to the MLT Program Director by March 1 for early acceptance or until class is full for late acceptance. For spring entry, applications should be submitted by November 1 for early acceptance and by January 1 for late acceptance. Applications will be taken until the class is filled. Class size is limited by availability of clinical sites.

Transcripts (college) and passing level TSI assessment test scores should be included with the application.

## Admission Criteria

1. The Health Science Division application for Medical Laboratory Technology should be submitted to the Program Director.
2. TSI test scores for assessment purposes should be submitted with the application.
3. Overall GPA of 2.0 or higher is required for all college courses completed.
4. Applicants must meet certain essential functions as defined by The National Accrediting Agency for Clinical Laboratory Science (NAACLS). The nonacademic criteria (essential functions) which all MLT applicants are expected to meet are listed in the medical lab tech packet.
5. Applicants must make an appointment to meet with the Program Director prior to acceptance. The program director can be contacted at 903-463-8684. All applications will be accepted through the health science department or directly to the program director.

## Required Immunizations

All Students must submit a copy of the records of the following immunizations with a validation stamp or signature, a signed statement from a physician, or lab report indicating serologic confirmation. Please note that some of these immunizations take up to six months to complete.

**Immunizations must be started in time to complete the series before the beginning of the semester. If unable to complete the series before the beginning of the first clinical, the applicant is not eligible for admission.**

1. TETANUS/DIPHTHERIA/PERTUSSIS (Tdap) (Immunization)

One dose of Tetanus/diphtheria/pertussis (Tdap) immunization within the last 10 years.

2. MEASLES, MUMPS, RUBELLA (MMR) (Immunizations or Blood Test)

If born after January 1, 1957, you must have proof of two doses of the MMR vaccine administered on or after the 1st birthday and at least 30 days apart - or - proof of serologic confirmation of measles, mumps and rubella immunity - or - serologic evidence of infection.

3. VARICELLA (Chickenpox) (Immunization or Blood Test)

Serologic confirmation of varicella immunity - or - varicella vaccine - two doses are required 4-8 weeks apart.

4. HEPATITIS B (Immunization or Blood Test)

Series of three hepatitis B vaccines - or - serologic confirmation of immunity to hepatitis B

#### 5. INFLUENZA VACCINE

Annual influenza vaccination with the most up-to-date strains predicted on the basis of viral surveillance data is required.

#### 6. MENINGOCOCCAL VACCINE

All on-campus college students who are under the age of 22 must have the meningococcal vaccination within the previous five years and at least 10 days prior to the first day of class.

\* Due to compliance with clinical facility requirements and Texas Department of State Health Services recommendations, Grayson College Health Science programs may not waiver immunization requirements for any reason. If immunizations are not complete, clinical

courses for the program must be delayed. Copies of records from physician's offices, public health department, public schools, other colleges, and the military are acceptable. Students should provide a copy of the records. Please do not turn in the originals.

### **Selection and Acceptance**

There are no pre-requisite courses that must be completed prior to acceptance into the MLT program. Applicants are accepted into the program once the Admission Criteria is met until the class is full. The number of students who can be admitted to the MLT Program is limited by the number of available clinical facilities.

When the maximum number is reached, additional applicants will be placed on a waiting list. Applicant will receive a letter stating acceptance to the program.

### **Additional Program Information**

MLAB 2660 and MLAB 2661, the major clinical components of the program may be offered in both the Fall and Spring Semesters. Students will be assigned to these clinical rotations based on availability of space and GPA of all required MLT courses. Students may be required to commute to a clinical site outside Grayson County if there are not enough local facilities available.

Employees of the Clinical Affiliates serve as Clinical Coordinators and Clinical Instructors.

Prior to clinical course rotations, students must pass a drug screen test and criminal background check (at the student's expense and completed as scheduled through a GC approved company). Criteria that prevent attendance at clinical sites and/or require withdrawal from the course are stipulated in the related GC Health Science policy.

Students who have been involved in the criminal justice system may not be eligible for licensure following graduation. If you feel this applies to you, please seek guidance from the program director of Health Science advisor prior to enrollment.

Students who are certified phlebotomists, or have recent documented experience as a phlebotomist may request credit for PLAB1223 and PLAB 1160 or PLAB 1161. Upon completion of adequate phlebotomy skills, such credit may be awarded. Each request will be considered individually and must be approved by the MLT Program Director.

Documentation required by the State of Texas to provide proof of Immunization; proof of immunity, results of a TB test, and the completed medical statement, must be submitted prior to start of class.

Proof of current American Heart Association(AHA) BLS CPR training must be provided before attending clinicals.

### **Contact information regarding program approval and accreditation:**

#### **National Accrediting Agency for Clinical Laboratory Science**

5600 N. River Rd. Suite 720  
Rosemont, IL 60018  
(773) 714-8880  
<http://www.naacls.org>

#### **application information**

Packet: [Medical Lab Tech Packet](#)

Hanbook: [MLT 2018-19 Student Handbook](#)

## **AAS Degree Requirements**

### **Associate of Applied Science Degree**

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**Subject**

**Semester Hours**

<a href="#">MLAB 1291</a> (Special Topics MLT)	2
<a href="#">MLAB 1201</a> (Introduction to Clinical Laboratory Science)	2
<a href="#">MLAB 1335</a> (Immunology/Serology)	3
<a href="#">PLAB 1160</a> (Phlebotomy Clinical)	1
<a href="#">ENGL 1301</a> (Composition I)	3
<a href="#">PLAB 1223</a> (Phlebotomy)	2
<a href="#">MLAB 2331</a> (Immunoematology)	3
<a href="#">MLAB 1315</a> (Hematology)	3
<a href="#">MLAB 1127</a> (Coagulation)	1
<a href="#">MLAB 1311</a> (Urinalysis and Body Fluids)	3
<a href="#">MLAB 1231</a> (Parasitology/Mycology)	2
*Humanities/Fine Arts	3
* <a href="#">SPCH 1311</a> , <a href="#">1315</a> or <a href="#">1321</a>	3
<a href="#">BIOL 2404</a> (Anatomy and Physiology)	4
<a href="#">MLAB 2434</a> (Clinical Microbiology)	4
<a href="#">MLAB 2401</a> (Clinical Chemistry)	4
<a href="#">MLAB 2238</a> (Advanced Topics in MLT)	2
<a href="#">PSYC 2301</a> (General Psychology)	3
<a href="#">MLAB 2660</a> (Clinical II)	6
<a href="#">MLAB 2661</a> (Clinical III)	6

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**60**

Capstone Requirement: All students must successfully complete MLAB 2660 and MLAB 2661 prior to graduation. To fulfill the capstone requirement.

\*Please review your Student Planner or contact your Student Success Coach/Faculty Mentor to review which courses may be used to fill this degree requirement.

## Outcomes

### NAACLS-MLT Pass Rates:

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Graduation School Year	MLT(ASCP) Board of Certification (BOC) Pass Rates
2014-2015	100%
2015-2016	75%
2016-2017	86%
2017-2018	Collecting Data
Three Year Average	85%

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**Job Placement Rates (Three-Year Average: 97%)**

**Second Half of Program Attrition Rates: 88%**

## Phlebotomy Certificate

### [Phlebotomy Certificate for Non-MLTs](#)

Consists of two courses, a lecture and two clinicals. Together they are designed to prepare students to:

- Perform the duties of a phlebotomist in a variety of health care settings
- Take a national certification exam.

Certificate classes meet at the college's Van Alstyne campus from 8 a.m. until 12:50 p.m. for 16 weeks. Clinical experience is an 8-hour per week rotation at one of the area hospitals. Selection of clinical sites may require travel. These are usually 4-hour rotations twice each week or one 8-hour rotation scheduled between 5 a.m. and 8 p.m. Monday through Friday only. Following program completion, the graduate will be eligible to take a national certification exam such as the one administered by the American Society for Clinical Pathology Board of Certification. Upon passing the exam, the graduate will be certified as a Phlebotomy Technician, PBT (ASCP).

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Subject	Semester Hours
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<a href="#">PLAB 1160 (Clinical I)</a>	1
PLAB 1161 (Clinical II)	1
<a href="#">PLAB 1223 (Phlebotomy)</a>	2
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## Core

Students earning an Associate of Applied Science Degree at Grayson College must complete fifteen semester hours of a general education core. The core courses are distributed as follows:

### Mathematics/Life and Physical Sciences (3 hours)

MATH 1314 College Algebra

MATH 1324 Mathematics for Business & Social Sciences

MATH 1332 Contemporary Mathematics I

MATH 1342 Elementary Statistical Methods

MATH 2312 Pre-Calculus Math

BIOL 1306/1106 Biology for Science Majors I

BIOL 1307/1107 Biology for Science Majors II

BIOL 1308/1108 Biology for Non-Science Majors I

BIOL 1309/1109 Biology for Non-Science Majors II

BIOL 1414 Introduction to Biotechnology I

BIOL 2301/2101 Anatomy & Physiology I

BIOL 2302/2102 Anatomy & Physiology II

BIOL 2404 Anatomy & Physiology (specialized, single-semester course, lecture + lab)

BIOL 2320/2120 Microbiology for Non-Science Majors

BIOL 2321/2121 Microbiology for Science Majors

CHEM 1406 Introductory Chemistry I (lecture + lab, allied health emphasis)

CHEM 1311/1111 General Chemistry I

CHEM 1312/1112 General Chemistry II

GEOL 1301/1101 Earth Sciences for Non-Science Majors I

GEOL 1303/1103 Physical Geology

GEOL 1304/1104 Historical Geology

GEOL 1305/1105 Environmental Science

**Social and Behavioral Science (3 hours)**

CRIJ 1307 Crime in America

ECON 2301 Principles of Macroeconomics

ECON 2302 Principles of Macroeconomics

GEOG 1303 World Regional Geography

GOVT 2305 Federal Government

GOVT 2306 Texas Government

HIST 1301 United States History I

HIST 1302 United States History II

PSYC 2301 General Psychology

PSYC 2314 Lifespan, Growth & Development

SOCI 1301 Introduction to Sociology

SOCI 1306 Social Problems

**Language, Philosophy, Culture/Creative Arts (3 hours)**

ARTS 1301 Art Appreciation

DRAM 1310 Stagecraft I

HUMA 1301 Introduction to the Humanities

HUMA 1302 Introduction to the Humanities II

MUSI 1306 Music Appreciation

PHIL 1301 Introduction to Philosophy

## Component Area Option (6 hours)

EDUC OR PSYC 1300 Learning Frameworks

SPCH 1311 Introduction to Speech Communication

SPCH 1315 Public Speaking

SPCH 1321 Business & Professional Communication

ENGL 1301 Composition I

ENGL 1302 Composition II

ENGL 2311 Technical and Business Writing

SPAN 1411 Beginning Spanish I

SPAN 1412 Beginning Spanish II

\*\*Any of the courses listed above in the previous Component Areas may be used for the hours toward the Component Area Option.

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### MLAB 1127 - Coagulation.

Includes quality control, quality assurance, safety and laboratory procedures which rely on commonly performed manual and semi-automated method

**Grade Basis:** L

**Credit hours:** 1.0

**Lab hours:** 3.0

**Restrictions:**

- A grade of "C" or better is required for graduation.
- MLAB 1201, 1291, 1335, PLAB 1223 and PLAB 1160 or 1161

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### MLAB 1201 - Introduction to Clinical Laboratory Science

An introduction to clinical laboratory science, including quality control, laboratory math, safety, laboratory equipment, laboratory settings, accreditation, certification, professionalism, and ethics. Acceptance into MLT-AD Program required. A grade of "C" or better is required to progress.

**Grade Basis:** L

**Credit hours:** 1.0

**Lecture hours:** 2.0

**Lab hours:** 4.0

**Restrictions:**

- Acceptable scores in college readiness exam, pre-entrance health exam, documentation of required immunizations, pass drug screen, pass criminal background check, documentation of CPR for Health Care Providers from American Heart Association. There are 16 hours of required college core academic courses that must be completed prior to graduation. These can be taken prior to entry into the program or concurrently.
  - MLAB 1291, 1335, and PLAB 1160 or 1161 and PLAB 1223
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## **MLAB 1231 - Parasitology/Mycology**

A study of the taxonomy, morphology, and pathogenesis of human parasites and fungi, including the practical application of laboratory procedures, quality control, quality assurance, and safety

**Grade Basis:** L

**Credit hours:** 2.0

**Lecture hours:** 1.0

**Lab hours:** 4.0

**Restrictions:**

- A grade of "C" or better is required for graduation.
  - MLAB 1201, 1291, 1335, PLAB 1223 and 1160 or 1161
  - MLAB 1311, 1315, 1127, 2331
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## **MLAB 1291 - Special Topics MLT**

An introductory study to include fundamental microbiology concepts and skills, basic mathematics, and elementary chemistry as they apply specifically to medical laboratory science.

**Grade Basis:** L

**Credit hours:** 2.0

**Lecture hours:** 4.0

**Lab hours:** 1.0

**Restrictions:**

- Acceptable scores in college readiness exam, pre-entrance health exam, documentation of required immunizations, pass drug screen, pass criminal background check, documentation of CPR for Health Care Providers from American Heart Association. There are 16 hours of required college core academic courses that must be completed prior to graduation. These can be taken prior to entry into the program or concurrently.
  - MLAB 1201, 1335, PLAB1160 or 1161 and PLAB 1223
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## **MLAB 1311 - Urinalysis and Body Fluids**

An introduction to urinalysis and body fluid analysis includes the anatomy and physiology of the kidney, physical, chemical and microscopic examination of urine, cerebrospinal fluid, and other body fluids as well as quality control, quality assurance and safety

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 2.0

**Lab hours:** 4.0

**Restrictions:**

- A grade of "C" or better is required for graduation.
  - MLAB 1201, 1291, 1335, PLAB 1223, and PLAB 1160 or 1161
  - MLAB 1231, 1315, 1127, 2331
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## **MLAB 1315 - Hematology**

The study of blood cells in normal and abnormal conditions. Instruction in the theory and practical application of hematology procedures, including quality control, quality assurance, safety, manual and/or automated methods; red blood cells and white blood cells as well as blood cell maturation sequences, and normal and abnormal morphology and associated disease

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 2.0

**Lab hours:** 4.0

**Restrictions:**

- A grade of "C" or better is required for graduation.
  - MLAB 1201, 1291, 1335, PLAB 1223, and PLAB 1160 or 1161
  - MLAB 1231, 1311, 1127, 2331
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## **MLAB 1335 - Immunology/Serology**

An introduction to the theory and application of basic immunology, including the immune response, principles of antigen-antibody reactions, and the principles of serological procedures as well as quality control, quality assurance, and safety.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 2.0

**Lab hours:** 4.0

**Restrictions:**

- A grade of "C" or better is required for graduation.
  - Acceptable scores in college readiness exam, pre-entrance health exam, documentation of required immunizations, pass drug screen, pass criminal background check, documentation of CPR for Health Care Providers from American Heart Association. There are 16 hours of required college core academic courses that must be completed prior to graduation. These can be taken prior to entry into the program or concurrently.
  - MLAB 1201, 1291, PLAB 1160 or 1161 and PLAB 1223
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## **MLAB 2238 - Advanced Topics in Medical Laboratory Technician**

A review course for Medical Laboratory Technology students covering all topics offered in MLT courses. The course examines the integration of all areas of the clinical laboratory and correlates laboratory test data with diagnostic applications and pathophysiology using critical thinking skills.

**Grade Basis:** L

**Credit hours:** 2.0

**Lecture hours:** 1.0

**Lab hours:** 4.0

**Restrictions:**

- All MLT courses must be completed or taken concurrently with a grade of "C" or better within program requirements.
  - MLAB 2434, 2401
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## **MLAB 2331 - Immunohematology**

A study of blood group antigens and antibodies. Presents quality control, basic laboratory technique and safety. Includes the principles, procedures and clinical significance of test results in genetics, blood group systems, pre-transfusion testing, adverse effects of transfusions, donor selection and components, and hemolytic disease of the newborn

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 2.0

**Lab hours:** 4.0

**Prerequisites:**

- [MLAB 1335](#) - Immunology/Serology

**Restrictions:**

- A grade of "C" or better is required for graduation.
  - MLAB 1201, 1291, 1335, PLAB 1223 and PLAB 1160 or 1161
  - MLAB 1231, 1311, 1315, 1127
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## **MLAB 2401 - Clinical Chemistry**

An introduction to the principles and procedures of various tests performed on 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 technique, chemical laboratory safety, electrolytes and acid-base balance, proteins, carbohydrates, lipids, enzymes, metabolites, endocrine function, and toxicology.

**Grade Basis:** L



**Credit hours:** 5.0  
**Lecture hours:** 3.0  
**Lab hours:** 6.0

**Prerequisites:**

- [MLAB 1291](#) - Special Topics MLT

**Restrictions:**

- A grade of "C" or better is required for graduation.
  - MLAB 1201, 1291, 1335, 1231, 1311, 1315, 1127, 2331, PLAB 1223 and PLAB 1160 or 1161,
  - MLAB 2434, 2238
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## **MLAB 2434 - Clinical Microbiology**

Introduction in the theory, practical application, and pathogenesis of clinical microbiology, including collection, quality control, quality assurance, safety, setup, identification, susceptibility testing, and reporting results.

**Grade Basis:** L  
**Credit hours:** 2.0  
**Lecture hours:** 4.0  
**Lab hours:** 6.0

**Prerequisites:**

- [MLAB 1291](#) - Special Topics MLT

**Restrictions:**

- A grade of "C" or better is required for graduation.
  - MLAB 1201, 1291, 1335, 2434, 2401, 2238, 1231, 1311, 1315, 1127, 2331
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## **MLAB 2660 - Clinical II**

A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision, clinical instruction and evaluation is provided by the clinical professional. Students perform laboratory procedures in assigned departments of the clinical laboratory. Departmental rotations include hematology, coagulation, advanced hematology, blood bank, serology, chemistry, and microbiology. Phlebotomy experience will be arranged. A weekly clinical conference will be scheduled.

**Grade Basis:** L  
**Credit hours:** 6.0

**Prerequisites:**

- [MLAB 2238](#) - Advanced Topics in Medical Laboratory Technician

**Restrictions:**

- Concurrent enrollment in MLAB 2661 required.
  - This course requires 18 lab hours.
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## **MLAB 2661 - Clinical III**

A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision, clinical instruction and evaluation is provided by the clinical professional. Students perform laboratory procedures in assigned departments of the clinical laboratory. Departmental rotations include hematology, coagulation, advanced hematology, blood bank, serology, chemistry, and microbiology. Phlebotomy experience will be arranged. A weekly clinical conference will be scheduled.

**Grade Basis:** L  
**Credit hours:** 6.0

**Prerequisites:**

- [MLAB 2238](#) - Advanced Topics in Medical Laboratory Technician

**Restrictions:**

- All MLT courses must be completed with a grade of “C” or better within program requirements.
  - Concurrent enrollment in MLAB 2660 required.
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## **PLAB 1160 - Phlebotomy Clinical**

A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. .

**Grade Basis:** L

**Credit hours:** 1.0

**Lab hours:** 4.0

**Restrictions:**

- Acceptable scores in college readiness exam, pre-entrance health exam, documentation of required immunizations, pass drug screen, pass criminal background check, documentation of CPR for Health Care Providers from American Heart Association. There are 16 hours of required college core academic courses that must be completed prior to graduation. These can be taken prior to entry into the program or concurrently.
  - MLAB 1201, 1291 1335, and PLAB 1223
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## **PLAB 1223 - Phlebotomy**

Skill development in the performance of a variety of blood collection methods using proper techniques and universal precautions. Includes vacuum collection devices, syringes, capillary skin puncture, butterfly needles and blood culture and specimen collection on adults, children, and infants. Emphasis on infection prevention, proper patient identification, labeling of specimens and quality assurance, specimen handling, processing, professionalism, ethics, and medical terminology.

**Grade Basis:** L

**Credit hours:** 2.0

**Lecture hours:** 1.0

**Lab hours:** 4.0

**Prerequisites:**

- [MLAB 1291](#) - Special Topics MLT

**Restrictions:**

- Will be offered to non-MLT majors. Anyone completing these courses with a grade of C or better will be eligible to take the American Society for Clinical Pathology ASCP Board of Certification examination for Phlebotomy
  - MLAB 1201, 1291 and 1335, PLAB 1160 or 1161
  - Pre-entrance health exam, documentation of required immunizations, pass drug screen, pass criminal background check, documentation of CPR for Health Care Providers from American Heart Association.
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## **PLAB 1161 - Phlebotomy Clinical II**

A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. .

**Grade Basis:** L

**Credit hours:** 1.0

**Lab hours:** 4.0

**Restrictions:**

- Acceptable scores in college readiness exam, pre-entrance health exam, documentation of required immunizations, pass drug screen, pass criminal background check, documentation of CPR for Health Care Providers from American Heart Association. There are 16 hours of required college core academic courses that must be completed prior to graduation. These can be taken prior to entry into the program or concurrently.
  - MLAB 1201, 1291 1335, and PLAB 1223
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**Grayson College**

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