



**VERA Z. DWYER**  
COLLEGE OF HEALTH SCIENCES

Indiana University South Bend  
Clinical Laboratory Science Program  
Handbook, 2021 Cohort Edition

## **Mission, Goals, Faculty, and Facilities**

The Medical Laboratory Scientist (MLS) professional, also known as a Clinical Laboratory Scientist, is an integral member of the patient care team by providing diagnostic information required to identify and treat the cause of illness in patients. Formerly known as a Medical Technologist, the MLS has an aptitude for science, especially biology and chemistry, and appreciates the investigative and technical aspects of laboratory medicine. Laboratory professionals are devoted to detection and diagnosis through the analysis of blood, body fluids, and tissue. An MLS will perform hundreds of laboratory tests, for which the results are used by physicians to diagnose disease, identify the most appropriate medication and dosage, and monitor the response to treatment.

In a laboratory, a Medical Laboratory Scientist may work in a variety of areas including clinical chemistry, hematology, immunology, microbiology, and the blood bank. In clinical chemistry, tests are often performed on blood and other body fluids to determine the patient's levels of various enzymes, proteins, and hormones. Variation in these analytes is diagnostic of disease such as diabetes, cardiac abnormalities, and even organ failure. In hematology, blood is examined for indicators of inflammation and infection, as well as cancers such as lymphoma and leukemia. Blood is also tested for its ability or inability to clot appropriately. This is referred to as hemostasis. Diagnostic testing in immunology is often centered on infectious diseases, through the identification of the infecting agent or antibodies produced in the presence of such agent. The antibodies involved in autoimmune diseases, such as lupus and arthritis, are also identified in immunology. In microbiology, body fluids, tissues, and other biological specimens are examined and tested to identify microorganisms causing disease and determine effective treatment options. Microbiology testing examines bacterial, viral, fungal, and parasitic agents causing disease in humans. The blood bank may be one of the most critical areas for the health of a patient. Not only does the blood bank perform simple tests, such as determining a patient's blood type, the blood bank is also responsible for transfusion medicine, ensuring blood given to a patient is compatible and will not cause harm.

The division and programs in Clinical Laboratory Science (CLS) have been developed in accordance with the Mission and Goals of Indiana University, the Indiana University South Bend campus and the Vera Z. Dwyer College of Health Sciences. In addition, the bachelors program in CLS was built to meet the standards set the National Accrediting Agency for Clinical Laboratory Science (NAACLS).

The Bachelor's degree in Clinical Laboratory Science (CLS) prepares students for work in the clinical laboratory setting including hematology, immunology, microbiology, chemistry, phlebotomy, molecular diagnostics and blood bank. The CLS program is located in the newly renovated Riverside Hall, which houses a classroom and student laboratory.

Students may enter the program through multiple routes: as entering freshman at IU South Bend without any prior degree, as second degree students with a bachelor's degree in either biology or chemistry, or as a licensed Medical Laboratory Technician seeking progression from an associate's to bachelor's degree.

## **Division Mission Statement**

The Clinical Laboratory Science Department within the Vera Z. Dwyer College of Health Sciences is focused on training healthcare professionals in clinical, diagnostic, and therapeutic laboratory operations and related skills. In addition, the department is focused on developing community outreach and advocacy in the field of Medical Laboratory Science and related professions as well as developing diverse interprofessional collaborations that involve clinical laboratory analysis and research.

## **Bachelors of Sciences in Clinical Laboratory Science Mission Statement**

The mission of the Bachelor of Science in Clinical Laboratory Science (BS-CLS) is consistent with the Mission and Vision of the IUSB campus and Vera Z. Dwyer College of Health Sciences through (I) engaging students with active learning, (II) creating the first and best resources in the community, (III) embracing diversity, and (IV) striving for educational excellence in the field of diagnostic laboratory medicine. The Clinical Laboratory Science degree curriculum is designed to promote intellectual growth and increased economic vitality through a healthy, life-long work force. The Clinical Laboratory Science degree will also be an avenue for scholarship and creative activity for faculty and students. The nature of the program allows for innovation in laboratory techniques and continuing education.

## **Program Goals and Graduation Competencies**

The program is designed around the creation of a well-rounded entry level professional in the medical or clinical laboratory sciences. This includes generalized knowledge in the following professional practice areas defined by the National Accrediting Agency for Clinical Laboratory Science (NAACLS):

- Application of safety and governmental regulations and standards as applied to clinical laboratory science
- Principles and practices of professional conduct and the significance of continuing professional development;
- Communications sufficient to serve the needs of patients, the public and members of the health care team;
- Principles and practices of administration and supervision as applied to clinical laboratory science;
- Educational methodologies and terminology sufficient to train/educate users and providers of laboratory services;
- Principles and practices of clinical study design, implementation and dissemination of results.

In addition these generalized professional practices. Students who graduate from the BS-CLS program should have entry-level competency in the content areas aligned with the 2016 revised entry-level curriculum standards produced by the ASCLS and sufficient to pass the ASCP BOC generalist exam for MLS certification. These general content areas are proscribed by NAACLS are as follows.

- Clinical chemistry
- Hematology/Hemostasis

- Immunology
- Immunohematology/transfusion medicine
- Microbiology
- Urine and body fluid analysis
- Laboratory Operations

### **NAACLS Accreditation Status**

The IUSB Clinical Laboratory Science program is an accredited Medical Laboratory Science training program proscribed by NAACLS, which allows all students who graduate from this program to sit for the American Society for Clinical Pathology (ASCP) MLS certification exam.

The process of accreditation requires several stages to reach full accreditation status including an initial application, designation of a program director and supporting documents that have been received and accepted by NAACLS. After the acceptance of a preliminary report, an additional self-study document must be produced and submitted for review. Completion of this step, now underway, will designate the program as a “Serious Applicant.” This step is followed by an initial site visit. The result of which determines the length of accreditation. Initial accreditation for the IUSB CLS Program was achieved May of 2020 for a period of five years; the maximum time for an initial accreditation.

For more information on the NAACLS accreditation process please visit: [NAACLS webpage](#)

National Accrediting Agency for Clinical Laboratory Sciences (NAACLS)  
5600 N. River Road, Suite 720  
Rosemont, IL, 60018

### **Division Personnel**

#### **Program Director**

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#### **Faculty**

Barbara Spinda, MS, MLS(ASCP)<sup>CM</sup>  
Dwyer Hall, 157  
(574) 520-4568  
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#### **Prior and Continuing Adjunct Faculty**

Brandy Sreeenilayam, PhD (2018)  
Nongkhan Sites, BS, MLS(ASCP)<sup>CM</sup> (2018 to current)

Jonathan Fuchs (2019 to current)  
Kristi Walker (2019 to current)  
Derrick Forchetti, MD (2019 to current)  
Karen Delle Donne, PhD (2020 to current)

Molly Feller, BS, MLS(ASCP)<sup>CM</sup>(2020 to current)

### **College Leadership**

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### **Unit Secretary**

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## **Advisory Board**

Many members of the regional laboratory science community and affiliated community health organizations have been asked to contribute to the IUSB Clinical Laboratory Science Advisory Board. The purpose of this advisory board is to connect the CLS faculty, staff, and students at IU South Bend with valuable individuals and companies throughout the community and to provide input into the curriculum and to determine if the curriculum is relevant and effective. This board meets annually during the September/October months at the IU South Bend campus.

Current members include:

- Derrick M. Forchetti, M.D., CMIO/Pathologist, South Bend Medical Foundation
- Gina Arsenault MLS, Laboratory Director, Memorial Hospital
- Jennifer Ulrich MT, Blood Bank Lead; La Porte Hospital
- Jamie Starbuck, M, Spectrum Lakeland Health
- Jonathan Fuchs MT, SBB, Blood Bank Supervisor, Methodist Hospital

- Leeah Hopper, Executive Program Director; AIDS Assist
- Nongkhan Sites MLS, Chemistry and Blood Bank Supervisor, Memorial Hospital
- Smruti Damania MT, Microbiology Specialist, South Bend Medical Foundation
- Susan Richeson MJ, MT, Laboratory Manager, St. Joseph Regional Medical Center
- Waldo Mikels-Carrasco, Director of Population Health Research and Development, Michiana Health Information Network

## Facilities

### Classroom and Teaching Laboratory at Vera Z. Dwyer Hall

The Clinical Laboratory Science program at Indiana University South Bend is housed in the recently remodeled Vera Z. Dwyer Hall on the IUSB campus. Dwyer Hall was remodeled for the purpose of housing the IUSB Health and Wellness Center, the offices of a federally qualified community health partner; HealthLinc, as well as the academic programs in Clinical Laboratory Science and Radiography. The Clinical Laboratory Science Program was provided facilities for faculty offices, a shared state-of-the-art classroom, a teaching laboratory, and a shared phlebotomy draw room.

This facility was built with the dual intention of providing both practical laboratory skills training and simulating the design and structure of a contemporary clinical lab. Facilities include student benches and chairs, wall benches with extensive storage, sinks, an emergency eye wash and shower, and DI water filtration system. Two additional rooms were incorporated into the lab design. One room was dedicated to a full size steam autoclave and additional storage, the other room was designed for cell culture and included two BSL2 biosafety cabinets, a clean countertop, two refrigerators, a -20 freezer, a -80 freezer, and two incubators. Equipment was also purchased as part of the initial build, including two Sysmex hematology analyzers, a CliniTek urine chemistry analyzer, a 40 bottle blood culture system, a tabletop Guava flow cytometer, a coagulation analyzer, one refrigerated centrifuge, two traditional centrifuges, and 12 student microscopes. Additionally, equipment from community partner donations was obtained including a Piccolo chemistry analyzer and 2 Ortho-Clinical Workstations.

Post-build supplies, reagents, and minor equipment were originally estimated based on the curricular needs of the four laboratory courses as well as available capital equipment, this list was further modified by Barbara Spinda, Clinical Assistant Professor and Laboratory Manager, based on evolving needs and to accommodate the first cohort of students. Additional, small equipment such as a vortex, water baths, heat blocks, slide dryers, and rockers were also purchased for use in the training laboratory.

### Clinical Facilities

Clinical site affiliation agreements, which have been approved by the IU legal department, are on file with the South Bend Medical Foundation (SBMF), Beacon Health Systems, and La Porte Hospital through Community Health Systems (CHS). Together these institutions are capable of handling between 10 and 12 students per academic term. Additional affiliations are in process with other regional laboratories to reach our capacity of 18 student rotations per academic cohort.

We are actively engaged in working with other area laboratory organizations to facilitate further clinical site placement should the need arise or should an alternate site be required or preferable based on student situation.

Current Contracted Clinical Facilities:

- South Bend Medical Foundation (SBMF) South Bend, IN
- Beacon Health Systems (Elkhart General Hospital, Memorial Hospital – South Bend)

- La Porte Hospital, La Porte, IN
- South Bend Clinic, South Bend, IN
- St. Joseph Regional Medical Center Mishawaka, IN
- Spectrum Lakeland Health, St. Joseph, MI location
- Dukes Memorial Hospital, Peru, IN
- Kosciusko Community Hospital, Warsaw, IN
- Lutheran Hospital, Fort Wayne, IN
- LabCorp, South Bend, IN location

## CLS Coursework and Outcomes Assessment

### Institutional Fees

Students enrolled in the CLS degree program pay tuition rates established by Indiana University South Bend and reported on the IUSB financial aid website (<https://students.iusb.edu/financial-aid/cost.html>). Full time IUSB students are charged for 15 credits under a campus wide banded tuition policy; which in general saves CLS students money during their three semesters within the program where 18 credits is the norm. These rates are subject to change each academic year. In addition to general course fees, students may be assessed standard Lab and Practicum Fees, also officially published and reported with each class.

In addition to traditional student fees, additional costs are added for hybrid and online courses as technology fees assessed by the University.

Students should refer to IUSB registrar's webpage (<https://students.iusb.edu/registrar/index.html>) for questions on about fees and deadlines for adding and dropping courses, as well as questions about the registrar's deadlines for refunds after withdrawal.

### Coursework

Please refer to the IUSB bulletin for the recently approved courses. Please refer to your iGPS degree map for a list of personalized map specific courses. Public access to the IU degree maps can be found at: <https://igps.iu.edu/sisaadm-prd/?guest=true>. In general, per semester or course, a three-credit-hour course meets for 3 hours a week, a four-credit-hour course meets for 4 hours a week, and a five-credit-hour course meets 5 hours a week. Orientation, pre and post conferences, service work and non-lecture course educational experiences cannot be included in these hours.

Unless otherwise specified, the following courses are all three credits and required for completion of the clinical track in Clinical Laboratory Science Bachelor's Degree at IU South Bend.

**CLS-L201 Introduction to the Diagnostic Laboratory** (1 cr. Not mandatory but recommended for traditional track and transfer students)

This course functions as a basic introduction to the field of Clinical Laboratory Sciences. Covering all of the major sub disciplines found in laboratory diagnostics; including clinical chemistry, hematology, microbiology, and others, this course is useful for students interested in pursuing a career in laboratory science or who are curious about the role of laboratory professionals in interdisciplinary healthcare.

**CLS-L202 Laboratory Math and Techniques** (1 cr. Not mandatory but recommended for traditional track and transfer students)

This course is designed as the second of two introductory courses in Clinical Laboratory Science. Students enrolled in this course will be introduced to the practical application of mathematical operations and laboratory techniques as they apply to the clinical diagnostic laboratory field.

**CLS-C405 Clinical Chemistry**

Clinical Chemistry is one of the key disciplinary areas for entry level competency as a Clinical or Medical Laboratory Scientist. This course covers the standard competencies in clinical chemistry tested in the ASCP BOC exam for generalists in Medical Laboratory Science (MLS). Students will examine the basic principles and practices used in the clinical chemistry laboratory including fundamental mathematics for laboratory measurements, analytical techniques, and clinical correlations. An emphasis will be placed on acid base balancing, lipid and protein identifications, enzymatic action, and their correlation with the endocrine system in clinical diagnostics. Should be taught in conjunction with laboratory course CLS-C406.

**CLS-C406 Diagnostic Methods (2 cr.)**

In conjunction with CLS-C405 Clinical Chemistry, students will be exposed to the basic and fundamental principles of contemporary medical laboratory chemistry practice, through practical laboratories that present both the principle and procedure for basic and common chemical laboratory techniques.

**CLS-M403 Clinical Microbiology**

Clinical microbiology is one of the key disciplinary areas for entry level competency as a Clinical or Medical Laboratory Scientist. This course covers standard competencies in routine microbiology tested in the ASCP BOC exam for generalists in Medical Laboratory Science (MLS). Students will examine the foundational principles of clinical microbiology including a focus on the most common microorganisms involved in infection and their classification. Microorganisms will be defined by traditional biochemical differentiation patterns, however an additional emphasis on contemporary immunological and molecular approaches to identification will also be explored. It should be taught in conjunction with the laboratory course CLS-M404.

**CLS-M404 Microbiological Methods (2 cr.)**

Should be taught in conjunction with CLS-M403 Clinical Microbiology, students will be exposed to the basic and fundamental principles of contemporary medical laboratory microbiology practice, through practical laboratories that present both the principle and procedure for basic and common chemical laboratory techniques.

**CLS-M450 Clinical Laboratory Management, Ethics and Policy**

This course covers an entry level understanding of the specifics of laboratory management including policy and ethical responsibilities and authorities. Classes delve into five major areas beginning with strategies for career success, and discussing the key areas of laboratory management, human resources, financial management and operations. Students will be asked to incorporate these key managerial aspects in a lab development mock-up exercise.

**CLS-I407 Immunoematology and Transfusion Medicine**

Biomarkers can be used to minimize the risks associated with the common practice of blood transfusion and blood banking, technically defined as immunoematology. This course covers both the conventional concepts and practices of antigen/antibody utilization in clinical laboratory practice with an emphasis on the blood bank and advanced discussions of the blood bank in transfusion medicine. Please take in conjunction with CLS-I408.

**CLS-I408 Blood Banking Methods (2 cr.)**

Should be taught in conjunction with CLS-I407 Serology and Immunoematology. CLS-I408 Blood Banking Methods provides practical laboratory components useful for conducting diagnostic testing in the blood bank laboratory setting. The focus of laboratory lessons will be on acquiring the fundamental skills in lab technique and etiquette prior to clinical externships.

**CLS-C407 Hematology**

This course is an essential component of the CLS curriculum. Hematology is one of the key disciplinary areas for entry level competency as a Clinical or Medical Laboratory Scientist. This course covers standard competencies in routine hematology tested in the ASCP BOC exam for generalists in Medical Laboratory Science (MLS). Students will examine the foundational principles of routine hematologic diagnostics including hemostasis, hemoglobin synthesis, and hematological disorders. A focus will be given in the areas of erythrocyte and leukocyte morphology and biology as well as a focus on the use of these cells in the diagnosis of disease. It should be taught in conjunction with the laboratory course CLS-C408.

#### **CLS – C408 Hematological Methods (2 cr.)**

In conjunction with CLS-C407 Hematology, students will be exposed to the basic and fundamental principles of contemporary medical laboratory hematology practice, through practical laboratories that present both the principle and procedure for basic and common hematological laboratory techniques including red and white cell differentiation, erythrocyte sedimentation, and traditional blood smear.

#### **CLS-L420 Urinalysis**

This course is a requirement for the program in Clinical Laboratory Science provided through the Vera Z. Dwyer College of Health Sciences, built in alignment with the NAACLS accreditation agency for Medical Laboratory Science (MLS). Students enrolled in this course will be taught the entry level curriculum necessary for professional certification by the ASCP BOC in diagnostic urinalysis and body fluid analysis.

#### **CLS-M411 Mycology/Parasitology**

This course is a requirement for the program in Clinical Laboratory Science provided through the Vera Z. Dwyer College of Health Sciences, built in alignment with the NAACLS accreditation agency for Medical Laboratory Science (MLS). Students enrolled in this course will be taught the entry level curriculum necessary for professional certification by the ASCP BOC in diagnostic mycology and parasitology.

#### **CLS-E401 General Externship I (5 cr.)**

The General Externship I and its companion course General Externship II will be performed during the senior year of study in the Clinical Laboratory Science program at IUSB housed in the Vera Z. Dwyer College of Health Sciences. Clinical rotations in this and its companion course will provide experience in all commonly practiced areas of clinical diagnostics including; clinical chemistry, microbiology, immunohematology, hematology, and urine and body fluid analysis. Students will be required to participate in clinical laboratory operations in regional laboratory and hospital organizations within the Michiana region that will be facilitated by the CLS program director and faculty in collaboration with clinical partners with current IUSB affiliation agreements. Entry requires successful completion of CLS courses L201, M403, M404, C405, C406, I407, I408, C407, and C408. Students should be aware that this course continues through the winter break.

#### **CLS-E402 General Externship II (5 cr.)**

The General Externship II will be performed during the senior year of study in the Clinical Laboratory Science program at IUSB housed in the Vera Z. Dwyer College of Health Sciences. Clinical rotations in this and its companion course will provide experience in all commonly practiced areas of clinical diagnostics including; clinical chemistry, microbiology, immunohematology, hematology, and urine and body fluid analysis. Students will be required to participate in clinical laboratory operations in regional laboratory and hospital organizations within the Michiana region that will be facilitated by the CLS program director and faculty in collaboration with clinical partners with current IUSB affiliation agreements. Entry requires successful completion of CLS courses L201, M403, M404, C405, C406, I407, I408, C407, and C408. Students should be aware that this course continues through the winter break.

### **CLS- I417 Clinical Immunodiagnostics**

Clinical Immunodiagnostics is the study of the analysis of antibodies as biomarkers in the diagnosis of disease and the use of antibodies as reagents in the detection of biomarkers of disease. This course is a requirement for the program in Clinical Laboratory Science at Indiana University South Bend. **CLS-C417 Advanced Hematology and Cancer**

Advanced Hematology and Cancer introduces the student to advanced topics in the development of malignancy, with an emphasis on hematological malignancies and other cancers diagnosed through blood and body fluid specimen collection techniques, as well as hematological disorders commonly found through testing in the clinical diagnostic space. Molecular, Immunological, and immunophenotyping techniques are examined in relation to widespread and well established hematological disease profiles. This course requires prior completion of CLS-C407 and CLS-C408 or entry into the MLT to CLS Degree Completion program.

### **CLS-M411 Advanced Clinical Microbiology**

This course is an advanced course in clinical Microbiology available to students who have been successfully admitted the clinical program in Clinical Laboratory Science. Students should have already completed CLS-M403 and CLS- M404 or be alternatively be admitted the MLT to CLS degree completion program. Students in this course will be introduced to advanced methods used in the microbiological laboratory including but not limited to an examination of serological and molecular approaches, vaccination from infection, and agents of bioterrorism.

### **CLS-C415 Clinical Molecular Diagnostics and Special Chemistry**

Clinical Molecular Diagnostics and Special Chemistry is an upper division course in the Clinical Laboratory Sciences. Entry into this course is limited to students currently coded into the clinical track for CLS. Students should have previously completed both CLS-C405 and CLS-C406. This course is focused on providing advanced practical skills in clinical chemistry and molecular diagnostic techniques utilized in the field of medical laboratory science.

## **Outcomes Assessment**

A number of IU system wide software tools will be utilized for the assessment of student, faculty, and program outcomes. The IU system uses the Taskstream Assessment Management System ([www.watermarkinsights.com](http://www.watermarkinsights.com)) for programmatic assessment that allows us to align the needs of NAACLS accreditation outcomes to our programmatic objectives. Outcomes that correlate with the three key student outcomes; graduation/attrition rates, placement rates, and certification pass rates, have been incorporated into this reporting system for yearly review. In addition, student evaluation of faculty and course content is requested for every course through the eXplorance Blue course evaluation software. This includes university wide questions, as well as college, division, and course specific questions added by the instructor. This system allows for a semester-by-semester examination of faculty performance and course content delivery. Faculty are encouraged to develop course specific questions that help them gauge course specific objectives. Furthermore, syllabi are designed to align with NAACLS, ASCP, and ASCLS-ELC objectives. Using these two assessment systems, the program director can run both semester-to-semester and year-to-year reports to assess trends in quality and performance at the level of the entire program and at the level of the individual course. Professors are instructed to reflect on their courses annually and to provide feedback for areas of improvement

through the institutionally sponsored Digital Measures Activity Insight (DMAI) tracking system (<https://www.digitalmeasures.com/activity-insight/why-activity-insight.html>), that serve as the basis for the system-wide faculty annual review (FAR). This process establishes the faculty member as the first level of accountability for course success. Administrators can then exam the instructor's reflection of their courses over time (see attached example in appendix 2).

Additionally, student performance can be tracked within the term, using our internal Student Engagement Roster (SER) reporting system in our online performance reporting system. This allows for nearly instantaneous feedback to individual students were any trending away from success and provides them with guidance for finding support. Student academic performance can also be tracked within our Student Information System (SIS) to compare prerequisite course completion and grading with CLS specific course grades and standing. Through these metrics, course outcomes will be compared with graduation rates and ASCP BOC exam pass rates. Additional assessments of employment and advanced degrees will be calculated as well through post-graduation surveys. These results will be posted online once they become available after the end of each academic year.

Specifically, The CLS program will document the following information and make it available publicly on our webpage (<https://healthscience.iusb.edu/clinical-laboratory-science/>).

- External certification results
- Graduation rates
- Placement rates (i.e., employment positions in the field of study or pursuit of further education)
- Attrition rates

## Clinical Laboratory Sciences Policies

### Admission, Progression and Graduate Policies:

All students admitted into the program must meet minimum GPA requirements set by the Vera Z. Dwyer College of Health Sciences (see College Policies Addendum). The CLS program follows the IU South Bend Academic Renewal Process. Only courses that count towards the application GPA are used when a student has sought and received Academic Renewal.

### Admission Criteria

There are three routes to admission into the bachelors of Clinical Laboratory Science; these are the traditional track, 2<sup>nd</sup> degree student track, and MLT to CLS completion track. In each case there are considerations for entry into the clinical track that are governed by the state and institutional policy. All students completing the program must complete a minimum of 120 credits to graduate.

Acceptance to the Bachelor of Science in Clinical Laboratory Science is completed in two phases. First, students must officially apply to Indiana University South Bend through the campus admissions office <https://admissions.iusb.edu/> with an intention of entering the College of Health Sciences as a Pre-CLS student. Students are guided through this process based on their current standing as 'First year' students, 'Returning' students, or 'Transfer or 2nd Degree' students; all categories that CLS students may fall into. This admission process is standardized across the campus. Once fully admitted into IUSB, students are reviewed by the college through our Health Science Advising team, who assess their course load and guide them toward the usage of the online iGPS degree plan tracking system.

While specific differences are found in each type of application, some common requirements are provided in the below table.

General CLS Clinical admission Process
1. PRIOR ACCEPTANCE INTO IUSB AS A PRE-CLS STUDENT
2. EXAMINATION OF EXISTING TRANSCRIPTS TO DETERMINE TERM OF PROGRAM CONVERSION FROM PRE-CLS MAJOR TO CLS MAJOR
3. REVIEW BY PROGRAM DIRECTOR AND ASSISTANT DEAN OF STUDENT SUCCESS
4. ACCEPTANCE LETTER IS SIGNED AND RETURNED
5. ACCEPTANCE PACKET IS SENT OUT FOR COMPLETION AND RETURN

An application is also provided if the number of applicants is determined to meet or exceed the maximum number of slots available for each cohort term; only applicable during years when program enrollment is expected to exceed 18 students and only for the two tracks; **traditional** and **2<sup>nd</sup> degree students**, that will complete clinical practicums and laboratory coursework within the program.

The details regarding application are provided below:

1. COMPLETION OF ELECTRONIC APPLICATION
2. SUBMISSION OF APPLICATION AND SUPPORTING DOCUMENTS
• PERSONAL ESSAY
• BACKGROUND CHECK

<ul style="list-style-type: none"> <li>• PROOF OF HEALTH INSURANCE</li> </ul>
<ul style="list-style-type: none"> <li>• TRANSCRIPTS</li> </ul>
<p>3. APPLICATION IS REVIEWED BY THE COLLEGE APG BOARD, PROGRAM DIRECTOR, AND ASSISTANT DEAN OF STUDENT SUCCESS</p>

Several categories will be assessed during the Application process in order to exclude ineligible candidates and rank eligible candidates in the case of enrollment numbers above the programmatic limit of 18 students per cohort (in exceptional cases the maximum student limit can be extended to 20).

Students should consider their background when considering the CLS major tracks as the following descriptions explain.

**Traditional Track:**

- Currently enrolled at IUSB and transferring majors
- Transfer students below 56 credits
- Incoming freshmen

**Second Bachelor’s Degree student Track:**

The 2nd Degree Student track is designed for those with a preexisting bachelor’s degree and an interest in pursuing a career in laboratory medicine. Students applying within this track should have a bachelor’s degree in biology, chemistry, or a related field of study. Students are evaluated on an individual basis to determine if their degree of study included all key competencies needed for successful completion of the Clinical Laboratory Science clinical track (see Competency checklist in Standard V supplement)

**MLT to CLS Completion Track:**

The MLT to CLS Completion Track is specifically designed for students with prior completion of an associate’s degree in MLT (Medical Laboratory Technician) or comparable degree, and certification as an MLT from ASCP (American Society of Clinical Pathology). Proof of MLT certification will grant the student a transfer of 60 credit hours toward their CLS degree. These students will not be enrolled in the cohort model but will instead complete a different collection of general education, biological science and CLS specific coursework amounting for the additional 60 credit hours in a non-traditional pathway required for completion of the BS in CLS.

Students must complete 2.5 years of pre-requisite coursework as traditional students prior to entry in the clinical portion of the program. At this point, a review of all courses is conducted and students are admitted into the program by a change in degree coding. An application has been developed for the program that will be implemented when the potential student number reaches on or near maximum capacity for our facilities and clinical sites (18 students). At which time, students will be considered eligible for conversion to the clinical track. A 1-page review of this process will be made available on the institutional website through our College advising office <https://healthscience.iusb.edu/resources1/index.html> (below).

The Assistant Dean of Student Success and Program Director will consider all eligibility requirements prior to sending a letter of acceptance to the program on October 1<sup>st</sup> prior to the Spring enrollment

term. Students will must sign and return this acceptance letter before receiving an emailed acceptance packet.



## VERA Z. DWYER COLLEGE OF HEALTH SCIENCES

INDIANA UNIVERSITY SOUTH BEND

### CLINICAL APPLICATION PROCESS

#### **DEGREE: Bachelor of Science in Clinical Laboratory Science**

#### **PROGRAM OVERVIEW:**

The Bachelor of Science in Clinical Laboratory Science provides students with extensive preparation for work in the clinical diagnostic laboratory, where they will perform procedures on biologic samples from patients.

#### **PROGRAM PROGRESSION:**

- Students who successfully complete the **CLS-L 201 Introduction to the Diagnostic Laboratory** course are able to progress into the remaining 3 semesters of the degree program. If a high demand for progression exists, students will be required to submit an application (see below for ranking).
- Students must complete all applicable Degree requirements (i.e. General Education) before progression into the remaining 3 semesters of the degree program.
- Students pursuing this program as a 2<sup>nd</sup> Bachelor's Degree will have previous coursework evaluated by the Program Director and must meet all competencies before progression into the remaining 3 semesters of the degree program.

#### **PROGRAM PREREQUISITE COURSES:**

- BIOL-L102 Introduction to Biology II OR Higher
- BIOL-L211 Molecular Biology
- BIOL-L311 Genetics OR BIOL-L321 Principles of Immunology OR Other
- CHEM-C101 Elementary Chemistry OR Higher
- CHEM-C121 Elementary Chemistry Lab OR Higher
- CLS-L201 Introduction to the Diagnostic Laboratory
- HSC-H322 Epidemiology and Biostatistics OR Other
- MATH-M115 Precalculus and Trigonometry Or Higher
- MICR-M250 Microbiology OR Higher
- MICR-M255 Microbiology Lab OR Higher

#### **APPLICATION RANKING**

- Application GPA (the weighted GPA of the program prerequisite courses): **25%**
- Work experience in a clinical lab, diagnostic lab, other (not required, but preferred): **15%**
- Previous Bachelor in Science degree conferred (not required, but preferred): **15%**
- Essay (the average of reviewers' scores): **15%**
- Campus enrollment (the weight assigned to the type of institution where the program prerequisite courses were taken): **15%**
- Course repeat (the weight assigned to the number of program prerequisite courses that were repeated): **15%**

## Essential Functions

Essential functions are the physical, intellectual and behavioral requirements of the program that a student must be able to master in order to successfully participate in the CLS program and become employable. Examples of the program's essential functions are provided below. In compliance with the National Accrediting Agency for Clinical Laboratory Science (NAACLS), the IUSB CLS program makes these essential functions available to prospective students and the public. Prospective students who are not sure that they will be able to perform these essential functions should consult with CLS faculty or DCHS advising for further information and to discuss individual situations.

### Visual and Perceptual Skills

A student in the CLS program must possess sufficient visual skills to perform and interpret laboratory assays and receive non-verbal communication appropriately.

Examples of visual skills include the ability to:

- Read calibration lines on pipettes and laboratory instruments that are one millimeter apart
- Characterize the color, clarity, and viscosity of biological specimens, reagents, or chemical reaction end products
- Discriminate color, shading, and fine structural differences of microscopic specimens using a clinical grade binocular microscope
- Read and interpret charts, graphs, and labels in print and video monitor
- Judge distance and depth accurately
- Have visual acuity corrected to 20/40 or better with the ability to accommodate at a distance of 10-20 feet

### Motor Skills- physical ability, coordination, dexterity

A student must also possess adequate motor skills to perform a variety of laboratory assays.

Examples of manipulative skills include the ability to:

- Turn dials, press keypads and move switches on laboratory instruments
- Grasp and release small objects (specimen tubes, pipette tips, pipettes, reagent vials, inoculating loops, etc.)
- Manipulate objects precisely and perform assays that require fine or gross motor skills using good hand-eye physical coordination, such as pipetting, measuring, and aliquoting liquids
- Safely handle flammable and hazardous chemicals, electrical, and infectious biological materials
- Perform precisely orchestrated procedures, such as isolate bacteria in microbiology by smoothly moving an inoculation loop over the surface of an agar culture plate without tearing the surface of the agar
- Utilize a computer keyboard and mouse to operate laboratory instruments and verify and transmit data
- Lift and move objects weighing 20 pounds
- Have normal tactile feeling. Sensitivity to heat, cold, pain, pressure, etc.

- Effectively and safely move from one location to another in such areas as clinical laboratories, patient rooms, treatment rooms, and elevators

### **Intellectual and Critical Thinking Skills**

A CLS student must possess a range of intellectual skills that allows him or her to master the broad and complex body of knowledge that constitutes a clinical laboratory science education.

Examples of intellectual skills include the ability to:

- Read and comprehend written material
- Use critical thinking skills necessary for sufficient clinical judgment
- Follow directions and procedures accurately and completely
- Define problems, measure, calculate, analyze data, and implement solutions
- Use math to solve equations, convert units, and perform statistical analysis
- Exercise independent judgement
- Organize workspace and workflow
- Recognize potentially hazardous materials, equipment, or situations, and respond safely in order to minimize risk of injury to patients, coworkers, and self
- Communicate clearly in English (both orally and in writing) in a professional and tactful manner with patients, laboratory personnel, and other healthcare and non-healthcare coworkers
- Compare, analyze, accept criticism, and alter performance if necessary

### **Emotional Stability and Personal Temperament**

A CLS student must possess sufficient emotional health to fully utilize his or her intellectual ability, to exercise good judgment, to complete clinical responsibilities promptly, and to relate to patients, instructors, and colleagues with courtesy, and respect.

A CLS student must be able to exhibit appropriate professional conduct that includes the ability to:

- Fulfill commitments and be accountable for actions
- Self-direct, self-correct, and be responsible for one's own learning and professional development
- Work both independently and collaboratively as a professional team member
- Make decisions, prioritize tasks, and work on multiple tasks simultaneously
- Be honest and forthright about error or uncertainty
- Maintain professional decorum and composure under the stress of didactic and clinical demands
- Show respect for cultural diversity in the classroom and clinical setting
- Exercise ethical judgement, integrity, honesty, dependability, patient confidentiality, and adhere to the academic and professional code of ethics
- Use sound judgement and decorum when in laboratory and work environment

## Application Ranking Criteria

A maximum capacity program will trigger the use of a clinical application, which, in addition to college GPA and course expectations, also assesses the student via the categories listed in the CLS Application Process Page, Application Ranking section. These are listed below.

1. Application GPA (the weighted GPA of the program prerequisite courses): 25%
2. Work experience in a clinical lab, diagnostic lab, other (not required, but preferred): 15%
3. Previous Bachelor in Science degree conferred (not required, but preferred): 15%
4. Essay (the average of reviewers' scores): 15%
5. Campus enrollment (the weight assigned to the type of institution where the program prerequisite courses were taken): 15%
6. Course repeat (the weight assigned to the number of program prerequisite courses that were repeated): 15%

<b>Applicant Scoring Rubric</b>	
Application and cumulative GPA	25%
Work experience	15%
<ul style="list-style-type: none"> <li>• Prior Clinical Experience</li> <li>• Prior Diagnostic Laboratory Experience</li> <li>• Other laboratory experience</li> </ul>	
Essay Score (3 reviewers)	15%
2 <sup>nd</sup> Degree	15%
Campus Enrollment	15%
<ul style="list-style-type: none"> <li>• All prerequisites IUSB (5)</li> <li>• Any transfer credits from IU system (4)</li> <li>• Any transfer credits from another bachelor granting institution (3)</li> <li>• Any transfer credits from 2 year institution <b>with</b> an agreement (2)</li> <li>• Any transfer credits from 2 year institution <b>without</b> an agreement (1)</li> </ul>	
Course Repeat	15%

## Post Acceptance Requirements

The following table articulates the types of documents and releases that are required for participation in any clinical track program within the Vera Z. Dwyer College of Health Sciences included CLS.

In addition, each student will be required to purchase a name badge, lab coat, nitrile gloves and addition course specific supplies. Laptops are also a requirement of all programs within the Vera Z. Dwyer College of health sciences.

<b>Post-Acceptance documentation/expectations</b>
Release of health documentation
Vaccines/flu shot
Physical
CPR
OSHA compliance
Blood borne pathogen compliance
HIPPA compliance
Clinical orientation attendance
Maintenance of a C- average in all courses and C- or better in every Methods course

### Student Advising

Students admitted in the Vera Z. Dwyer College of Health Sciences are required to set up appointments with the Vera Z. Dwyer College of Health Sciences Academic Advising and Student Success Center. Prior to transition to the clinical track, students will discuss scheduling of courses with the advising center team.

The Vera Z. Dwyer College of Health Sciences Advising Center provides academic advising services to all College of Health Sciences students in a professional, collaborative and ethical manner. Current students may schedule an advising appointment by logging into the Student Appointment Scheduler (SAS) app in their One.IU account. Students inquiring about the program requirements should contact:

Janielle Tchakerian, M.Ed  
Assistant Dean for Student Success  
Northside Hall, 415  
(574) 520-4238  
[jtchaker@iu.edu](mailto:jtchaker@iu.edu)

Faculty advising is performed by the Program Director or members of the Clinical Laboratory Science faculty. After acceptance into the clinical track continued discussions of course schedules will be facilitated by the CLS faculty.

## **Rotation Assignment**

Clinical assignments cannot be immediately guaranteed. However the Program Director and faculty closely monitor the number and quality of our community site partners, and attempt to place all students. Students may be expected to interview prior to placement and clinical sites may reserve the right to refuse students.

Community/Clinical sites will be authorized to determine the order of rotations, as long as they do not conflict with campus semester and vacation scheduling. Exceptions to this rule must be discussed and approved in advance by members of the University Administrative team.

In general students will be expected to complete the following rotations:

**Chemistry - 2 weeks**

**Urinalysis / Body fluids - 2 weeks**

**Hematology / Hemostasis - 3 weeks**

**Microbiology - 4 weeks**

**Immunology - 2 weeks**

**Blood bank - 3 weeks**

**Phlebotomy - 0.5 weeks**

All attempts will be made to accommodate student/site requests in order to facilitate completion of the externship rotations during the ideal period of time within the student's senior year. However, rotation location and duration cannot be guaranteed.

## **Student Unexpected Withdrawal/Completion Prevention Policy**

Clinical students are expected to complete all coursework as part of their cohort class. However, under extreme circumstances such as a medical emergency or other unexpected crisis, the program director will work with the student directly to determine a plan of action for course and program completion. All communications regarding this issue will be forwarded to the Assistant Dean of Student Success for permanent placement in the student file.

In general the program director will discuss:

- What courses they can/ cannot enroll in based on the current issue?
- The timeframe with which they expect to be absent.
- What accommodations are needed for academic and clinical course completion?

In all incidences in which a documented medical or unexpected crisis has occurred efforts will be made to find placement in subsequent sections of the course. However, courses cannot be

offered outside of their normal structure or sequence and this may interfere with the student's graduation date. If medically absent from class for an extended period of time, longer than 1 week, a notification from the student's doctor suggesting their ability to complete the essential program functions must be provided upon return.

### **Student Grievance and Appeals**

A policy for student course grievance and appeal has been established by the Vera Z. Dwyer College of Health Sciences (policy 7.2 C, transcribed as it appears online at <https://healthscience.iusb.edu/policies/index.html> and applies to all student grievances within the CLS program.

Students have the right to dispute a grade they have received. However, there is a process for disputing the grade. If a student disputes his/her final course grade, the student must discuss the matter with the faculty member assigning the grade no later than three years from the end date of the semester in question. This procedure below is for any student who decides to grieve a course grade that is taught within the Vera Z. Dwyer College at Indiana University South Bend:

1. A student must provide a written appeal to the faculty member(s) of record for the class within 7 days of receiving the grade. This process is only after the student has met with the instructor(s) and the conclusion is the instructor(s) are not willing to change the grade.
2. The faculty member(s) will review the student's written appeal and provide a written response within 10 days of receiving the appeal.
3. If the student wishes to appeal that decision, the student must provide a new written appeal to the program director that oversees the course.
4. The program director will review all of the written appeals, meet with the student and provide a written response within 10 days of receiving the appeal.
5. If the student wishes to appeal that decision, the student must provide a new written appeal to the Assistant Dean that oversees the course. The Assistant Dean will review all of the written appeals, meet with the student and provide a written response within 10 days of receiving the appeal (or Dean if Assistant Dean Role is vacant). If the Program Director is the faculty of record for the class, the student must provide a written appeal to the Assistant Dean that oversees the course.

If an Assistant Dean is the faculty of record for the class, the student must provide a written appeal to the Dean of the college. After the above mentioned policy, the procedures set for in the Indiana University South Bend Policy apply. Please refer to the IUSB Academic Bulletin for more information.

### **Student Probation, Suspension, Dismissal, and Reinstatement**

Student probation and dismissal decisions are first adjudicated by the Vera Z. Dwyer College of Health Sciences Acceptance, Progression and Graduation (APG) committee. This committee oversees recommendations for all probation, suspension, dismissal, and reinstatement cases within the Dwyer College, including the programs in Clinical Laboratory Science. A complete list of current policies can be found at <https://healthscience.iusb.edu/policies/index.html>.

Student probation may result from any failure to follow policies provided by their course instructor in an individual course, or from failure to comply with policies within this handbook, published on the college website, or published in the campus and university student handbooks.

### **Probation and Dismissal**

In all cases student probationary status will be initiated by the Problem Area Assessment form and personalized Learning Contracts; as delineated in policy 7.7 (alt. AS-03-C) Student Progression Documentation Policy. These processes may be implemented by faculty members and Program Directors and are reviewed by the College APG board. The policy and rationales for dismissal from the program, college, and campus are delineated in college policy 7.7 found at <https://healthscience.iusb.edu/policies/index.html>.

### **Appeal**

Students can appeals must be directed toward the Assistant Dean of Student Success listed previously in the Student Advising section of this chapter. The policy regarding the appeal of APG decisions including problem assessments, learning contracts, and dismissal can be found in policy 7.9.B at <https://healthscience.iusb.edu/policies/index.html>.

### **Reinstatement**

Students who have been dismissed and would like to be reinstated must submit a written document to the APG committee by July 1, October 1, or February 1 prior to the semester they would like to reenroll. The policy and requirements for this written appeal can be found in policy 7.28 at <https://healthscience.iusb.edu/policies/index.html>. [Please contact the CLS program director and Assistant Dean of Student Success for more information.](#)

## General Student Conduct Policies

The policies below are meant to be comprehensive for students in the division of Clinical Laboratory Science. Students are expected to follow all Vera Z. Dwyer College of Health Sciences level policies as well as all division level policies listed herein. When indicated with a DCHS policy number, the policies have been developed at the college level.

A complete list of college level policies can be found at <https://healthscience.iusb.edu/policies/index.html>.

For more information on campus level conduct policies please refer to the Office of Student Conduct at <https://students.iusb.edu/student-support-services/office-of-student-conduct/students.html> and review IU-wide policies at <http://studentcode.iu.edu/>.

For emphasis several important college/institutional policies are names specifically here to reiterate their importance for programmatic success. It is encouraged that students read these policies and are aware of their implications.

**Attendance and Professional Behavior Policy** (DCHS policy No. 7.10, alt. AS-11-A)

**Critical Behaviors Policy** (DCHS Policy No. 7.27, alt. AS-25-A)

**Student Drug Screen Policy** (DCHS Policy No.7.5)

**Criminal Background Check Policy** (DCHS Policy No.7.20, alt. AS-07-C)

**Cardiopulmonary Resuscitation (CPR) Policy** (DCHS Policy No.7.17, alt. AS-16-B)

**Impaired Student Policy** (DCHS Policy No. 7.26, alt. AS-21-A)

**Writing Expectations Policy** (DCHS Policy 7.14, alt. AS-15-A)

**Technology Policy** (DCHS Policy 7.23,alt. IT-03-A)

## Professional Etiquette

Professionalism is the manner and way that we interact with our colleagues and handle our duties while on the job. As a professional program, CLS students, should act with decorum in the work place and avoid actions and behaviors that jeopardize the standards and practices of their profession. Specific guidelines for professionalism in the clinical sites will be available for review at the clinical sites; all site-specific standards and practices should be followed while in clinical rotations to avoid unfavorable reviews from clinical site instructors and to represent themselves and the university in the highest caliber.

1. Uphold and follow all codes of conduct, including the **Personal and Academic Misconduct Code**, relevant codes and bulletins of respective schools, professional programs or professional societies, and all rules applicable to conduct in class environments or

university-sponsored activities, including off-campus clinical, field, internships, or in-service experiences.

2. Obey all applicable university policies and procedures and all local, state, and federal laws.
3. Facilitate the learning environment and the process of learning, including attending class regularly, completing class assignments, and coming to class prepared.
4. Plan a program of study appropriate to the student's educational goals. This may include selecting a major field of study, choosing an appropriate degree program within the discipline, planning class schedules, and meeting the requirements for the degree.
5. Use university property and facilities in support of their education while being mindful of the rights of others to use university property and facilities.
6. Maintain and regularly monitor their university accounts including e-mail and bursar accounts.
7. Uphold and maintain academic and professional honesty and integrity.
8. You are responsible for your behavior. Respect the rights and dignity of others both within and outside of the university community.

Additional guidance is provided within the section Laboratory Etiquette and Attire.

## **Critical Behaviors**

These behaviors may impact clinical progression:

Being in a professional program, we are training you to uphold the standards of the profession. This means that we have professional responsibilities and expectations for ourselves and students. Not upholding our standards can affect clinical progression. We call these critical behaviors.

1. Breach of client confidentiality.
2. Untruthfulness or misrepresentation of facts.
3. Cheating, including plagiarism.
4. Lack of professional attire and demeanor at any time in the clinical area.
5. Lack of prompt notification of appropriate persons when errors occur in the clinical area.
6. Consistent tardiness without notification of appropriate faculty and the clinical area.
7. Repeated lack of knowledge or inability to transfer knowledge from pre-requisite courses to current clinical situations.
8. Consistent demonstration of lack of respect for human dignity and the uniqueness of the client unrestricted by consideration of social or economic status, personal attributes or the nature of the health problem.
9. We enforce a zero tolerance for alcohol and/or drug use.

## **Laboratory Etiquette and Attire**

### **Appearance Code**

The Appearance Code provides IU South Bend Division of Clinical Laboratory Science students with information necessary to select on-duty attire and accessories which are compatible with professionalism, employee identification, neatness, and modesty. If attire is unacceptable to the instructor or internship coordinator, the student may be sent home and will have to make up time at

their expense.

## **Professional Attire**

### ***CLS Classroom and Laboratory***

Students are expected to wear a laboratory coat at all times during classroom laboratory activities. Short and open-toed shoes are not permitted in the laboratory. Hand washing is required on entry and exit of the laboratory space. Gloves and other appropriate PPE is required during all laboratory procedures.

### ***Generalized Attire for Clinical Sites/Practicums***

Please refer and conform to all attire policies for the clinical site that you are assigned. Generalized attire guidelines for laboratory usage should act as a guideline (see above).

## **Picture ID**

A valid IU South Bend picture ID or valid driver's license must be carried with the student at all times. Certain agencies may require displaying of your identification as part of your uniform.

## **Professional Wear for Volunteer Activities**

When assisting with health programs and assignments outside traditional settings (health fairs, ceremonies, volunteer efforts connected to the school, etc.) please check with the instructor or coordinator of the program for appropriate attire.

## **Specific Attire for Selected Clinical Partners**

Students are required to wear Lab coats and appropriate PPE at all clinical sites. In addition, all students are required to wear a university issued ID.

## CLS Student Expectations

In general, students in the CLS program are expected to conform to the Vera Z. Dwyer College of Health Sciences conduct policies as described in Section I of this chapter.

1. Students are expected to attend and be on time to all classes.
2. Students are expected to follow all safety and policy guidelines during Class, Laboratory or Externship rotation.
3. Students are required to comply with all college level health and safety documentation policies.
4. Students are expected to represent the program, college, and university as professionals during their time within the academic program.
  - a. Demonstrate a commitment to professionalism
  - b. Demonstrate appropriate interpersonal and communication skills
  - c. Demonstrate an understanding of the University Code of Ethics

(see Professional Etiquette above)

5. Students are expected to maintain a C- average in all courses and achieve a C- or better in all laboratory courses (Methods and Externship courses).
6. Students are not expected nor required to obtain any external certification prior to graduation from the program or as a term of any course.
7. Students are not expected nor required to complete service work during their externship period in return for credit or as a condition of course completion.
8. Failure to follow University, College, or Programmatic policies may be grounds for corrective action or removal from the program.

## General Safety and Risk Management Policies

All students in the Clinical Laboratory Science program are required by NAACLS to complete safety and bloodborne pathogen training. Standardized training for biosafety and bloodborne pathogens have been created by the IU Office of Environmental Health and Safety. A record of course completion is to be held on file with the Program Director prior to clinical site placement.

Students can access this training (updated annually) by typing in the correct Keywords at <https://expand.iu.edu/browse/e-training>.

Required training:

### Bloodborne Pathogens Training - Clinical and Research

#### Biosafety Training

*In the event of a laboratory injury or exposure during classroom training, please refer to section III of this chapter for more laboratory specific details.*

The following general biosafety policies and bloodborne pathogen guidelines are duplicated from the Dwyer College of Health Sciences Policy manual to provide additional guidance to students, updates to these policy can be found online at <https://healthscience.iusb.edu/policies/policies-and-forms.html>. Please review DCHS policy 7.32, Biosafety/Bloodborne pathogens for more details in the link above.

## Training Laboratory Bio - Safety Risks

As of July 2018, the CLS Laboratory Operations housed in Dwyer Hall Room 144, 144A, and 144B have been approved as a BSL-2 facility by the IU Institutional Biosafety Committee (IBC) under protocol # SB-978. Student activities in the CLS lab are currently restricted to teaching, however other testing may occur in this facility under an approved IU Revenue Producing Activity (RPA) #2885. Within each laboratory course, students will perform various activities related to the topic of the course. All specimens, including urine, blood and other body fluids will be handled following OSHA Universal precautions. Four laboratory courses are taught in the IUSB Riverside Laboratory; each of which has methods in the name of the course.

**CLS-C 406 Diagnostic Methods:** Students will perform phlebotomy on each other to collect specimens. Blood will be processed and tested for various chemistry values, immunology biomarkers, and disease identification. Urine specimens will be tested macroscopically and microscopically for indicators of disease.

**CLS-C 408 Hematology Methods:** Students will perform phlebotomy on each other to collect specimens. Blood will be tested for cellular components both by instrumentation and slide preparation. Students will also test blood for coagulation function.

**CLS-1 408 Blood Banking Methods:** Students will perform phlebotomy on each other to collect specimens. Blood will be processed and tested for various immunologic indicators of blood type

compatibility for donors/recipients. Blood will also be tested for blood typing and antibody identification within the field of immunohematology.

**CLS-M404 Microbiology Methods:** Students will plate microorganisms and clinical specimens to agar plates, incubate, and perform biochemical and antimicrobial testing. Students will also create dilutions of microorganisms for testing purposes. (A list of potentially infective microorganisms is provided as an addendum to this handbook)

All work will be performed on bench top unless organisms are identified as having an aerosol risk, in which case testing and specimen manipulation will occur in BSL-II BSC or with appropriate clinical grade PPE to prevent inhalation. Students are being trained to work in a clinical facility where the predominant testing is performed without the aid of BSL-II BSC availability. Students will not be conducting extensive procedures intended to create aerosol risks. Typically specimens will be moved as single colonies or in broths for plating purposes. Mixing of colony forming solutions will be conducted by the instructor following standard safety precautions. Clinical organisms are used for training students to identify pathogenic organisms commonly encountered in the clinical for diagnostic purposes and where possible strains are used that have been shown to have reduced infectious probability.

Students are in training to become Medical Laboratory Scientists in which phlebotomy is part of their profession, while students are not required to perform phlebotomy on a regular basis, they may be asked to perform phlebotomy as part of the program requirements and training. Phlebotomy poses minimal risk to the student if performed appropriately and in a sterile fashion.

For a complete guide to IU biosafety policies please refer to <https://protect.iu.edu/environmental-health/biological/biosafety-manual/index.html> , which is produced by IU Environmental Health and Safety.

### Potentially encountered microorganisms and their safety hazards

							<i>Potential Routes of Transmission</i> (check [X] all applicable routes) *RG2 and higher			
	<i>Biological Material</i>	<i>Source</i>	<i>Infectious Host Range</i> *RG2 and higher	<i>Check if Zoonotic</i>	<i>Risk Group (RG)</i>	<i>Containment Level/Biosafety Level (BL)</i>	<i>Injection*</i>	<i>Ingestion*</i>	<i>Inhalation*</i>	<i>Direct contact open wound or mucous</i>
01.	<i>Corynebacterium</i> species	Hospital lab			RG 1	BL-1				
02.	<i>Enterococcus casseliflavus</i>	ATCC			RG 1	BL-1				

03.	<i>Enterococcus faecalis</i>	ATCC	Humans, animals		RG 2	BL-2	X			X
04.	<i>Enterococcus saccharolyticus</i>	ATCC			RG 1	BL-1				
05.	<i>Kocuria kristinae</i>	ATCC			RG 1	BL-1				
06.	<i>Listeria monocytogenes</i>	ATCC	Humans, animals, soil, vegetables		RG 2	BL-2	X	X		X
07.	<i>Micrococcus luteus</i>	ATCC			RG 1	BL-1				
08.	<i>Moraxella catarrhalis</i>	ATCC			RG 1	BL-1				
09.	<i>Staphylococcus aureus</i>	ATCC	Humans and warm blooded animals	X	RG 2	BL-2	X	X		X
10.	<i>Staphylococcus epidermidis</i>	ATCC			RG 1	BL-1				
11.	<i>Staphylococcus sciuri</i>	ATCC			RG 1	BL-1				
12.	<i>Streptococcus agalactiae</i>	ATCC	Humans		RG 2	BL-2				X
13.	<i>Streptococcus equi</i> ssp. <i>zooepidemicus</i>	ATCC	Bovine and equine species	X	RG 2	BL-2	X			
14.	<i>Streptococcus pneumoniae</i>	ATCC	Humans		RG 2	BL-2			X	X
15.	<i>Streptococcus pyogenes</i>	ATCC	Humans		RG 2	BL-2			X	X
16.	<i>Streptococcus salivarius</i> ssp. <i>thermophilus</i>	ATCC			RG 1	BL-1				
17.	<i>Acinetobacter baumannii</i>	ATCC	Humans, environment		RG 2	BL-2	X			X
18.	<i>Achromobacter xylosoxidans</i>	Hospital lab	Humans (transient), environment		RG 2	BL-2	X			X
19.	<i>Citrobacter brakii</i>	Hospital lab			RG 1	BL-1				
20.	<i>Elizabethkingia meningoseptica</i>	ATCC	Humans, soil, plants, water		RG 2	BL-2	X			X
21.	<i>Escherichia coli</i>	ATCC			RG 1	BL-1				
22.	<i>Escherichia coli</i> O157:H7	ATCC	Humans, animals		RG 2	BL-2		X		
23.	<i>Klebsiella oxytoca</i>	ATCC	Humans		RG 2	BL-2	X		X	X
24.	<i>Klebsiella pneumoniae</i>	ATCC	Humans		RG 2	BL-2	X		X	X

25.	<i>Morganella morganii</i>	Hospital lab	Humans		RG 2	BL-2	X			X
26.	<i>Ochrobactrum anthropic</i>	ATCC			RG 1	BL-1				
27.	<i>Proteus mirabilis</i>	ATCC	Humans		RG 2	BL-2	X			X
28.	<i>Proteus vulgaris</i>	ATCC	Humans		RG 2	BL-2	X			X
29.	<i>Providencia rettgeri</i>	Hospital lab	Humans		RG 2	BL-2	X			X
30.	<i>Pseudomonas aeruginosa</i>	ATCC	Soil, water, plants		RG 2	BL-2	X	X	X	X
31.	<i>Serratia marcescens</i>	IUSB micro lab			RG 1	BL-1				
32.	<i>Shigella sonnei</i>	ATCC	Humans		RG 2	BL-2	X	X		
33.	<i>Stenotrophomonas maltophilia</i>	ATCC			RG 1	BL-1				
34.	<i>Campylobacter jejuni</i>	ATCC	Poultry, pigs, dogs, cats, birds, humans		RG 2	BL-2	X	X		
35.	<i>Haemophilus parahaemolyticus</i>	ATCC	Humans		RG 2	BL-2			X	
36.	<i>Haemophilus influenzae</i>	ATCC	Humans		RG 2	BL-2	X		X	X
37.	<i>Gardnerella vaginalis</i>	ATCC	Humans		RG 2	BL-2	X			X
38.	<i>Neisseria gonorrhoeae</i>	ATCC	Humans		RG 2	BL-2	X			X
39.	<i>Neisseria meningitidis</i>	ATCC	Humans		RG 2	BL-2	X		X	X
40.	<i>Bacteroides fragilis</i>	ATCC	Humans		RG 2	BL-2	X			X
41.	<i>Clostridium perfringens</i>	ATCC	Environment		RG 2	BL-2	X	X		X
42.	<i>Candida albicans</i>	ATCC			RG 2	BL-2	X			X
43.	<i>Candida glabrata</i>	ATCC			RG 1	BL-1				
44.	<i>Candida parapsilosis</i>	ATCC			RG 1	BL-1				
45.	<i>Issatchenkia orientalis</i>	ATCC			RG 1	BL-1				



## Laboratory Emergency Guidelines

Guidelines associated exposure and exposure mitigation related to potentially biological hazards are derived from the IU Biosafety Manual section 3:

[https://protect.iu.edu/doc/environmental-health/biosafety\\_manual\\_program\\_elements.pdf](https://protect.iu.edu/doc/environmental-health/biosafety_manual_program_elements.pdf)

A spill kit is located in the lab and contains written directions regarding clean-up in the case of a spill. The spill Clean-up guidelines provided in the IU biosafety Manual are replicated below with modifications for student use.

### Spill Clean – Up Guidelines

- Perform all clean-up with the guidance of your course instructor.
- Wear gloves, protective eyewear and a lab coat.
- Use forceps or other mechanical means to pick up broken glass and discard into sharps container.
- Cover spilled material with paper towels.
- Add diluted disinfectant in sufficient quantity to ensure effective microbial inactivation, let sit 15 minutes.
- Dispose of towels in waste container.
- Wipe spill area with diluted disinfectant. Discard of clean-up materials in waste container.
- Wash hands with soap and water when finished.
- Report all spills to your instructor, who will notify EHS Biosafety.
- If injury has occurred involving blood, or a BSL-1/BSL-2 organism complete an Occupational Injury/Illness Report and seek medical evaluation.

### Spills involving large quantities of BSL-2 Material require additional precautions.

- Keep other students/workers out of the area.
- Post warning signs in needed
- Remove contaminated clothing and put in biohazard bag for later decontamination.
- Wash hands and any exposed skin and inform instructor who will contact EHS Biosafety for assistance.

Please refer to the IU Safety Manual for safe clean-up practices involving other materials not covered here.

### Injury Involving Biological Materials Guidelines

The official IU guidelines indicate that ‘any individual who receives exposure or potential exposure will be offered a medical consultation and advising of available treatments by the Designated Medical Service provide for your respective campus.’ For IU South Bend, the workman’s compensation provider is US HealthWorks, formerly known as Wipperman Occupational Health. For students at IUSB please contact the Health and Wellness Center; <https://healthscience.iusb.edu/health-and-wellness-center/index.html>.

[US HealthWorks](#)

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South Bend, IN 46637  
574-277-7600  
Monday - Friday: 8am\* - 4:30pm  
\*open at 9am on 2nd Wednesday of the month

Exposure is defined as:

- Contact with non-intact skin such as cuts, rashes, or abrasions
- Contact with mucosal membranes-eyes, nose, and mouth
- Sharps puncturing or cutting the skin

Guidelines for handling an exposure incident:

- If immediate threat to life call 911; otherwise
- Make the site bleed
- Wash the exposed area for 15 minutes
- Report the incident to your work supervisor immediately
- Notify the EHS Biosafety for your respective campus of the exposure
- Follow campus specific procedures to fill out an Occupational Injury/Illness Report to initiate medical consultation and treatment by the Designated Medical Service Provider for your respective campus

### **Pandemic response:**

Additional guidance will be provided at the time of any specific pandemic, particularly those that are airborne or droplet pathogens. Some general guidance is provided below:

1. When entering space, appropriate face covering needs to be in place
2. Wash hands with soap and water
3. Don a gown, mask, gloves, and personal eyewear (optional)
4. Take temperature (optional) and answer the screening questions
5. Disinfect surfaces or objects that are used/touched
6. Distance from others by at least 6 feet as much of the time as possible
7. Following CDC guidelines, remove all PPE as indicated below:
8. Remove gloves: ensure glove removal does not cause additional contamination
9. Remove gown: break/untie/unsnap gown in gentle manner
10. Exit room
11. Perform hand hygiene
12. Remove face shield or optional protective eyewear
13. If applicable, disinfect eyewear using a sanitizing wipe to pick up eyewear
14. Wash hands with soap and water
15. Obtain any personal items and leave the building
16. If presenting with signs of symptoms of illness, notify instructor

## **Clinical Facility Safety Guidelines**

All students enrolled in the CLS program will be required to complete rotations at one or more clinical site. While on location, students are expected to act as representatives of IU. In addition to following the general guidelines established by the College and documented within this and prior chapters, students will be required to follow the clinical safety and risk mitigation policies and procedures established at their clinical sites while on location there.

In accordance with IU's standard affiliation agreements with clinical sites, the College is required to provide 'documentation of immunity to communicable/infectious diseases, immunization for seasonal influenza, screening for tuberculosis,' and verification of any pertinent clinical certifications or licenses. These documents may be requested by the facilities for review and students must sign a release of information form allowing for the release of this information.

In addition, students will be required to have and maintain current CPR certification and have been previously trained in compliance with OSHA universal precautions and Bloodborne Pathogen Standards.

The facility will provide 'emergency care to students, at the students' expense, for work-related illnesses and accidents, occurring while the student is in training at the Facility.' The facility will also provide personal protective equipment (PPE) as required by OSHA Bloodborne Pathogen Standard. Additionally, drug testing and criminal background testing; described in earlier, and are required to ensure the safety of patients, other students, and employees within the clinical site.

In most instances the clinical site will require a review and acknowledgement of understanding of their specific safety guidelines before training can begin. In many facilities a tour of the safety features is provided as part of the course. For example at South Bend Medical Foundation you will be expected to know where PPE is stored and where safety devices such as the fire extinguishers, fire exit plan, eyewash stations, safety showers, emergency spill kits, biosafety hoods, first aid kits, and MSDS sheets are located. Students must take the tour and pass a safety quiz prior to starting work in their microbiology lab.

Safety mandates are site specific and may vary from those listed above and students should become acquainted with all safety guidelines in place at their rotation site.

## **HIPPA Compliance**

Both the College and Clinical Facility must comply with all federal and state laws regarding privacy, security and electronic transaction of patient records, including but not limited to those regulations outlined in Title II, Subtitle F of the Health Insurance Portability and Accountability Act (HIPAA). Students, for this purpose only, are defined as members of the Clinical Site's workforce and are obligated under the law to protect the health information of patients as proscribed by HIPAA.