SYLLABUS

NAME OF COURSE: MICROBIOLOGY LAB PATH – 632

LENGTH OF COURSE: 22 hours, 1 unit (2 hours lab/week)

COURSE DESCRIPTION: The microbiology laboratory portion of the course is designed to introduce students to techniques and applications used in the study of microbial organisms such as bacteria, fungi and protozoans.

PREREQUISITES: CHEM-121, PATH-120

COURSE OFFERED BY: Basic Sciences Department

REQUIRED TEXTS: None

RECOMMENDED TEXT: Lebouffe, M J. *A Photographic Atlas for the Microbiology Laboratory. 3rd ed. 2005*

MATERIALS: Handouts provided by instructor

METHOD OF INSTRUCTION: Laboratory Exercises

EVALUATION / GRADING CRITERIA:

The lab grade will be based on the total points earned in two practical examinations and 5 weekly quizzes. The first exam will usually be administered during week 5 and is worth 25 points. Students will have one minute to answer the question(s) at each of the 24 stations. The second, a cumulative final, is given during week 10 and is worth 50 points. Students will have two minutes to answer the questions at each of the 24 stations. Weekly quizzes are worth 5 points each for a total of 25 points. The final letter grade is based on a standard scale:

100% - 90%	A
89% - 80%	B
79% - 70%	C
00% - 69%	F

Grades and the Grading System Final Grades are available online through the CAMS student portal. If there are any questions on grading procedures, computation of grade point average, or the accuracy of the grade report, please contact the Registrar's Office or the Office of Academic Affairs. Grades will be reported and evaluation will be based on the Academic Policies, Procedures, & Services. Please refer to Evaluation Policy **(Policy ID: OAA.0007)**

In order to maintain **Satisfactory Academic Progress**, a student must maintain a 2.0 or better in each and every course. **Any grade less than a C must be remedied by repeating the class.** Please refer to Satisfactory Academic Progress **(Policy ID: OAA.0006)**

Attendance: Please refer to Attendance Policy (**Policy ID: OAA.0002**). Attendance in each Lab is mandatory. Work missed cannot necessarily be made up the following week.

Conduct and Responsibilities: Please refer to the Personal Conduct, Responsibility and Academic Responsibility Policy (**Policy ID: OAA.0003**)

Make-up Exams: Please refer to Make-up Assessment Policy (**Policy ID: OAA.0001**)

Request for Special Testing: Please refer to Request for Special Testing (**Policy ID: OAA.0004**)

Accommodation for Students with Disabilities:
If you have approved accommodations, please make an appointment to meet with your instructor as soon as possible. If you believe you require an accommodation, but do not have an approved accommodation letter, please see the Academic Counselor Lori Pino in the Office of Academic Affairs. Contact info: Lpino@lifewest.edu or 510-780-4500 ext. 2061. Please refer to Service for Students with Disabilities Policy
(**Policy ID: OAA.0005**)

Electronic Course Management:
Canvas is LCCW's Learning Management System (LMS). Canvas will be used throughout the quarter during this course. Lectures, reminders, and messages will be posted. In addition, documents such as the course syllabus and helpful information about the class project will be posted. Students are expected to check Canvas at least once a week in order to keep updated. The website address for Canvas is https://lifewest.instructure.com/login/canvas Please refer to the Educational Technologies Policy (**Policy ID: OAA.0009)**

COURSE GOALS:

1. Familiarize with the principles and techniques used in handling, culturing, and identifying microorganisms.
2. Learn about the growth requirements of selected important microorganisms to understand how to control them.
3. Provide experience that enable chiropractors to communicate with other member of the health care community.

COURSE OBJECTIVES:

Week 1	Overview of lab safety procedures Basic microscopy: magnification, resolution, resolving power, parfocality, using oil immersion Buccal smear from self - sampling, aseptic technique, and simple staining
Week 2	Gram staining as an example of a differential staining procedure Demo scopes to illustrate important differential stains used in microbiology: (capsule, flagella, endospore, and acid - fast stains)
Week 3	Differential and selective media (blood agar, Mannitol salts agar) to illustrate the presence and characteristics of gram positive cocci that are members of the normal flora of the upper respiratory tract Significance of microaerophilic growing conditions using candle jar Importance of hand washing and how microbes are passed via touch from person to person (gummy bear experiment)
Week 4	**Midterm Lab Practical Examination**
Week 5	Process and analyze media inoculated previously as part of gram positive cocci study and the gummy bear study
Week 6	Media to distinguish regular gram negative intestinal flora from transient free living environmentals from real fecal pathogens.
Week 7	Continue using differential and selective media to distinguish regular gram negative intestinal flora from fecal pathogens.
Week 8	Enteric based bacterial testing methods Identify hand washing techniques and their effectiveness
Week 9	Continue the outbreak and environmental testing lab Demonstrate oxygen and temperature effects on microbial growth Review material covered for final examination.
Week 10	**Final Lab Practical Examination**

STUDENT LEARNING OUTCOMES:
Upon completion of this course students should be able to:

1. Acquire and demonstrate competency in laboratory safety and microbiological laboratory skills applicable to microbiological research or clinical methods, including accurately reporting observations and analysis. [PLO: 1,4,10]

2. Explain what visible light microscopy can and cannot be used to study in the microbial world. [PLO: 1,6]
3. Describe different staining techniques, gram stain reaction and differential and selective media in identifying bacteria. [PLO: 1]
4. Explain the importance of basic personal hygiene in dealing with multiple patients on daily basis. [PLO: 3,4]
5. Retrieve, analyze and use microbiologic information in dealing with patients on regular basis. [PLO: 1,3]

Program Learning Outcomes (PLO): Students graduating with a Doctor of Chiropractic degree will be proficient in the following:

1. **ASSESSMENT AND DIAGNOSIS:** An assessment and diagnosis requires developed clinical reasoning skills. Clinical reasoning consists of data gathering and interpretation, hypothesis generation and testing, and critical evaluation of diagnostic strategies. It is a dynamic process that occurs before, during, and after the collection of data through history, physical examination, imaging, laboratory tests and case-related clinical services.
2. **MANAGEMENT PLAN:** Management involves the development, implementation and documentation of a patient care plan for positively impacting a patient's health and well-being, including specific therapeutic goals and prognoses. It may include case follow-up, referral, and/or collaborative care.
3. **HEALTH PROMOTION AND DISEASE PREVENTION:** Health promotion and disease prevention requires an understanding and application of epidemiological principles regarding the nature and identification of health issues in diverse populations and recognizes the impact of biological, chemical, behavioral, structural, psychosocial and environmental factors on general health.
4. **COMMUNICATION AND RECORD KEEPING**: Effective communication includes oral, written and nonverbal skills with appropriate sensitivity, clarity and control for a wide range of healthcare related activities, to include patient care, professional communication, health education, and record keeping and reporting.
5. **PROFESSIONAL ETHICS AND JURISPRUDENCE**: Professionals comply with the law and exhibit ethical behavior.
6. **INFORMATION AND TECHNOLOGY LITERACY**: Information literacy is a set of abilities, including the use of technology, to locate, evaluate and integrate research and other types of evidence to manage patient care.
7. **CHIROPRACTIC ADJUSTMENT/MANIPULATION**: Doctors of chiropractic employ the adjustment/manipulation to address joint and neurophysiologic dysfunction. The adjustment/manipulation is a precise procedure requiring the discrimination and identification of dysfunction, interpretation and application of clinical knowledge; and, the use of cognitive and psychomotor skills.
8. **INTERPROFESSIONAL EDUCATION**: Students have the knowledge, skills and values necessary to function as part of an inter-professional team to provide patient-centered collaborative care. Inter-professional teamwork may be demonstrated in didactic, clinical or simulated learning environments.
9. **BUSINESS**: Assessing personal skills and attributes, developing leadership skills, leveraging talents and strengths that provide an achievable expectation for graduate success. Adopting a systems-based approach to business operations. Networking with practitioners in associated fields with chiropractic, alternative medicine and allopathic medicine. Experiencing and acquiring the hard business skills required to open and operate an on-going business concern. Participating in practical, real time events that promote business building and quantifiable marketing research outcomes
10. **PHILOSOPHY:** Demonstrates an ability to incorporate a philosophically based Chiropractic paradigm in approach to patient care. Demonstrates an understanding of both traditional and contemporary Chiropractic philosophic concepts and principles. Demonstrates an understanding of the concepts of philosophy, science, and art in chiropractic principles and their importance to chiropractic practice.