COLLEGE OF SCIENCE & MATHEMATICS

2012-2014

BIOLOGY E-1 & E-2

(Clinical Lab Sciences)

MIDWESTERN STATE UNIVERSITY

College of Science & Mathematics, Department of Biology
3410 Taft Boulevard, Wichita Falls, TX 76308-2099
(940) 397-4163 ♦ FAX (940) 397-4831

Dear Biology Major:

Thank you for choosing the Clinical Laboratory Science concentration in the Biology program at Midwestern State University. We are confident that our program will allow you to achieve your goal. The program is small enough for students to interact with the faculty and their fellow students, but large enough to provide an excellent education. Our facilities are well-equipped and you will be well-trained for a career in the Clinical Laboratory Sciences.

Your first option in this program is Biology E1, which involves 27 hours of hospital-based clinical coursework. As a student in this program, you will complete your academic requirements in the first three years. During this time, I will serve as your advisor and assist you in completing your degree plan, and applying to a hospital for your year of clinical. We should meet at least once a semester, or more if needed. The fourth year of the program consists of a clinical rotation at a NAACLS approved facility (visit www.naacls.org). Before being accepted into the clinical rotation, the student will be responsible for completing the following immunizations: MMR, Hepatitis, Tetanus, PPD, and Varicella. The student will choose the clinical facility and will be responsible for making application. You may choose any facility available in the State of Texas or anywhere in the United States and we will set up an affiliation with them to award you a degree at the completion of the clinical rotation. Currently, MSU has clinical affiliation agreements with Comanche Memorial Hospital in Lawton, Oklahoma, United Regional Health Care System in Wichita Falls, Clinical Laboratory Scientist Program of Tarleton State University in Fort Worth, and Scott & White Hospital in Temple (the latter three facilities are in Texas). Once the clinical rotation has been completed, the student will then be eligible to sit for the Medical Technology Registry of the American Society of Clinical Pathologists and will be awarded a Bachelors degree in Clinical Laboratory Science. If you are not accepted into a clinical rotation program for your fourth year, you will be transitioned to the second option of this program, Biology E2. This option involves additional coursework here at Midwestern, allowing you to graduate with a full Bachelor of Science degree in Biology with emphasis in Clinical Laboratory Science. (If you get accepted into a program in the meantime, you would just continue under Option E1.)

Being a certified Medical Technologist allows me greater insight into this field and the ability to provide you with current information. As your advisor for the program and the instructor for several courses, I will be able to provide you with first-hand knowledge of the clinical rotation, student responsibilities and expectations, and details of the laboratory work environment due to my experience and training.

As a medical technologist, you will be an important part of the health care team. The physicians and others like nurse practitioners and physician assistants depend on the laboratory tests performed by a medical technologist for the accurate treatment of the patient. The accuracy of the test results and the efficiency of the medical technologist are vital to the decisions made by the physician. We are confident that upon completion of the degree from Midwestern State University, you will be able to provide the above-mentioned services in a professional manner.

The enclosed information will help you decide if this is the right path for you. However, please use this in addition to the MSU undergraduate catalog for course requirements. This pamphlet should be brought with you when visiting with your advisor. All changes, course substitutions, additions or amendments to the degree plan should be recorded in this pamphlet.

If you have any questions, please call me at 940-397-4523 for an appointment or e-mail me at asma.javed@mwsu.edu. Good luck in your studies and I hope we can be of help.

Sincerely,

Asma M. Javed, M.S., M.T. (ASCP)
Biology Instructor
Clinical Laboratory Science Advisor

IMMUNIZATION POLICY
(Required for Option E1)

To comply with the Texas Administrative Code §97.61-97.77 all students, enrolled in health-related courses that will involve direct patient contact, must meet compliance with state-mandated immunizations. Additional program requirements are included.

Midwestern State University
State-Mandated and Program Requirements

TETANUS/DIPHTHERIA (Td):
Students can be considered compliant for Tetanus/Diphtheria only if they have documentation of at least one of the following:

1. Official documentation of immunization with adult-type Tetanus/Diphtheria vaccine (Td) in the last ten years.

MEASLES (RUBEOLA):
Students born on or after January 1, 1957 can be considered compliant for Measles only if they have documentation of at least one of the following:

1. Official documentation of immunization with **TWO (2) DOSES** of live Measles virus **on or after the first birthday and at least 28 days apart**. Persons vaccinated **prior to 1968** must be revaccinated.
2. Laboratory (serologic) evidence of Measles immunity.

RUBELLA (GERMAN MEASLES):
Students can be considered compliant for Rubella only if they have documentation of at least one of the following:

1. Official documentation of immunization with live Rubella virus vaccine **on or after the first birthday.**
2. Laboratory (serologic) evidence of Rubella immunity.

MUMPS:
Students born on or after January 1, 1957 can be considered compliant for Mumps only if they have documentation of at least one of the following:

1. Official documentation of immunization with live Mumps virus vaccine **on or after the first birthday**.
2. Laboratory (serologic) evidence of Mumps immunity.

VARICELLA (CHICKEN POX):
Students can be considered compliant for Varicella only if they have documentation of at least one of the following:

1. Official documentation of two doses of varicella vaccine, administered **on or after the first birthday**, if given after 13 years of age.
2. Laboratory (serologic) evidence of Varicella immunity.
3. A written, dated statement documenting the month/day/year of varicella (chickenpox) illness validated by a physician, the student's parent, or school nurse.

Please note: Specific wording is required. Forms are available at the Vinson Health Center.

HEPATITIS B:
Students can be considered compliant for Hepatitis B only if they have documentation of at least one of the following:

1. Official documentation of immunization with THREE (3) DOSES of Hepatitis B vaccine in accordance with the CDC Advisory Committee on Immunization Practices, **prior to the start of direct patient care**.
2. Laboratory (serologic) evidence of Hepatitis B immunity.

TUBERCULIN SKIN TEST (TST):
Students can be considered compliant for tuberculin testing only if they have documentation of at least one of the following (required annually):

1. Official documentation of negative Mantoux skin test.
2. Persons with a positive TST result must provide official documentation of a negative chest x-ray report **and** a complete health care evaluation verifying a negative status for tuberculosis.

MIDWESTERN STATE UNIVERSITY
COLLEGE OF SCIENCE & MATHEMATICS
DEGREE PLAN - BIOLOGY MAJOR - Option E-1

Catalog 2012-2014

Date: _____

TOTAL HOURS MUST BE minimum 122.
TOTAL ADVANCED HOURS MUST BE minimum 33.

Name _____ Mustang ID# _____ Expected Graduation Date: _____

Successful Completion of THEA (Date) _____ Successful Completion of Writing Proficiency Exam _____

Upon successful completion, place course grade in blank. * Specify

If transfer work has been accepted, indicate next to course & identify college/university where class was taken in the space below.

● _____
■ _____
▲ _____

I. Academic Foundations

ENGL 1113		
ENGL 1123		
SPCH 1133		
or SPCH 1233		
CMPS		
MATH 1233		
HIST 1133		
HIST 1233		
POLS 1333		
POLS 1433		
ECON 1333		
or ECON 2333		
PSYC 1103		
or SOCL 1133		
EXPH *		
EXPH *		
Fine Arts*		

2 Semesters of 1 Foreign Language

1134*	
1234*	

II. Option E-1 Clinical Lab Sciences

BIOL 1144	
BIOL 1544	
BIOL 3054	
BIOL 3064	
BIOL 3334	
BIOL 3003	
BIOL 4023	
BIOL 4001	

III. Program Requirements

BIOL 2144		CHEM 2001	
CHEM 1141		CHEM 2003	
CHEM 1143		CHEM 3305	
CHEM 1241		STATS 3573	
CHEM 1243			

IV. Electives

V. Upon completion of academic coursework, the student will apply for acceptance to a Hospital- or University-based clinical practicum consisting of 27 semester hours (advanced hours).

I.	Hrs		Adv Hrs
II.	Hrs		Adv Hrs
III.	Hrs		Adv Hrs
IV.	Hrs		Adv Hrs

Total Hours _____ **Total Advanced Hours** _____

_____ Advisor-Asma Javed

_____ Chair/Major-Dr. William Cook

_____ Dean-Dr. Lynn Little

_____ *STUDENT - I understand that this degree plan does not supersede catalog requirements for which I am fully respoonsible.*

MIDWESTERN STATE UNIVERSITY
COLLEGE OF SCIENCE & MATHEMATICS
DEGREE PLAN - BIOLOGY MAJOR - Option E-2

Catalog 2012-2014

Date: _____

Name _____ Mustang ID# _____ Expected Graduation Date: _____

Successful Completion of THEA (Date) _____ Successful Completion of Writing Proficiency Exam _____

Upon successful completion, place course grade in blank. * Specify

I. Academic Foundations

ENGL 1113		
ENGL 1123		
SPCH 1133		
or SPCH 1233		
CMPS		
MATH 1233		
HIST 1133		
HIST 1233		
POLS 1333		
POLS 1433		
ECON 1333		
or ECON 2333		
PSYC 1103		
or SOCL 1133		
EXPH *		
EXPH *		
Fine Arts*		

2 Semesters of 1 Foreign Language

1134*		
1234*		

II. Option E-2 Clinical Lab Sciences

BIOL 1144	
BIOL 1544	
BIOL 3054	
BIOL 3064	
BIOL 3334	
BIOL 3003	
BIOL 4021	
BIOL 4023	
BIOL 4001	

III. Program Requirements

CHEM 1141	
CHEM 1143	
CHEM 1241	
CHEM 1243	
CHEM 2001	
CHEM 2003	
CHEM 3305	
BIOL 2144	
PHYS 1144	
PHYS 1244	
MATH 1433	*OR*
MATH 1534	
STATS 3573	

If transfer work has been accepted, indicate next to course & identify college or university where class was taken in the space below:

- ● _____
- ■ _____
- ▲ _____

(CONTINUED ON PAGE 2) ⟶

I. Hrs Earned		**II. Hrs Earned**		**III. Hrs Earned**	
Adv Hrs		**Adv Hrs**		**Adv Hrs**	

DEGREE PLAN - BIOLOGY MAJOR - Option E-2 (Clinical Lab Sciences)

Name _____ Mustangs ID# _____

IV. Select 14 Semester Credit Hours From The Following:

BIOL 3144	____	CHEM 2011	____
BIOL 3234	____	CHEM 2013	____
BIOL 3534	____	CHEM 3405	____
BIOL 3644	____	CHEM 4243	____
BIOL 4444	____	CHEM 4242	____
BIOL 4524	____	CHEM 4253	____

IV. Hrs Earned ____ **Adv Hrs** ____

V. Electives

_____	____	_____	____
_____	____	_____	____
_____	____	_____	____
_____	____	_____	____
_____	____	_____	____
_____	____	_____	____
_____	____	_____	____

V. Hrs Earned ____ **Adv Hrs** ____

Additional comments or explanations:

TOTAL HOURS MUST BE minimum 122.
TOTAL ADVANCED HOURS MUST BE minimum 33.

Total Hours _____ **Total Advanced Hours** _____

Advisor-Asma Javed

Chair/Major-Dr. William Cook

Dean-Dr. Lynn Little

STUDENT - I understand that this degree plan does not supersede catalog requirements for which I am fully responsible.

CLINICAL LAB SCIENCE PROGRESSION PLAN

Freshman Year: Term One			**Freshman Year:** Term Two		
Course Subject & Number	**Description**	**Hrs**	**Course Subject & Number**	**Description**	**Hrs**
BIOL 1144	General Zoology	4	BIOL 1544	General Botany	4
CHEM 1143/1141	General Chemistry/Lab (Preq/concurrent: MATH 1233 or 1534)	3/1	CHEM 1243/1241	General Chemistry/Lab (Preq: MATH 1233 or 1534, and CHEM 1143)	3/1
MATH 1233	College Algebra (preq: MATH 1003 w/ "C" or better, or appropriate placement score)	3	Core	Economics, Psychology or Sociology	3
ENGL 1113	Rhetoric & Comp (preq: appropriate placement scores)	3	ENGL 1123	Rhetoric & Comp (preq: ENGL 1113)	3
Total Hours: **14** *Make appointment with your Clinical Lab Science Advisor*			Total Hours: **14** *Make appointment with your Clinical Lab Science Advisor*		
Sophomore Year: Term Three			**Sophomore Year:** Term Four		
Course Subject & Number	**Description**	**Hrs**	**Course Subject & Number**	**Description**	**Hrs**
BIOL 3054	Principles of Biology I (preq: BIOL 1144 & 1544 & 1 yr. Chemistry)	4	BIOL 3064	Principles of Biology II (preq: BIOL 3054 w/ "C" or better)	4
CHEM 2003/2001	Organic Chem/Lab (preq: CHEM 1243/1241 w/ "C" or better)	3/1	BIOL 2144	Microbiology (preq: CHEM 1203) override done for CLS students	4
POLS 1333	American Government	3	POLS 1433	American Government	3
HIST 1133	Survey of Amer Hist to 1865	3	HIST 1233	Survey of Amer Hist from 1865	3
CMPS 1023 or CMPS 1013	Comp for Science Majors (preq: MATH 1233 or 1534 or concurrent) or Computer Concepts and Apps	3	SPCH ***3	Speech Core	3
Total Hours: **17** *Make appointment with your Clinical Lab Science Advisor*			Total Hours: **16** *Make appointment with your Clinical Lab Science Advisor*		

Note:

- It is critical to connect with your Clinical Lab Science advisor your <u>first</u> semester. They have vital information about preparing for this program.
- Many courses have pre-requisites. Please check the academic catalog for pre-requisite and placement information.
- The **E1** Clinical Lab Science Option of the Biology program will prepare students to do a clinical practicum in the final year. Even though guidance is given regarding possible placement opportunities, acceptance is not guaranteed and is at the sole discretion of the receiving hospital.
- Some upper level courses are not taught every semester. Be sure to check Biology and Chemistry Course Sequence sheets for course availability.
- If chemistry and math are not taken the first semester, it may prolong program.

This document is meant to be a complementary resource to your official degree plan for the first two years of your program. It is not a substitution for the degree plan, nor does it supersede catalog requirements for which you are responsible.

CLINICAL LAB SCIENCE

SCHOLARSHIP OPPORTUNITIES:

Department scholarships: Mary L. Bates, Hart Memorial, Wichita County Education Fund (selections based on GPA).

HOW TO GET INVOLVED IN YOUR MAJOR:

Research Opportunities:

- UGROW Research http://scienceandmath.mwsu.edu/research.asp
- Individual Faculty will often have unpaid research opportunities. Students can check out their faculty's research areas to find similar interests.

Talk to your Clinical Lab Science faculty advisor early about your educational and career goals.

MY FACULTY ADVISOR is:

Ms. Asma M. Javed

(940) 397-4523

asma.javed@mwsu.edu

PROGRAM SCHEDULE

NAME _____ DATE _____

Dept. Name:	Course #	Dept. Name:	Course #	Dept. Name:	Course #	Dept. Name:	Course #
Fall, 20_____		Fall, 20_____		Fall, 20_____		Fall, 20_____	
Spring, 20_____		Spring, 20_____		Spring, 20_____		Spring, 20_____	
Summer, 20_____		Summer, 20_____		Summer, 20_____		Summer, 20_____	

Biology Course Sequence

8/20/2012

Fall Even

1134 Anatomy & Physiology I
1144 General Zoology
1234 Anatomy & Physiology II
1544 General Botany
2144 Microbiology
3024 Vertebrate Zoology
3044 Bacteriology
3054 Principles of Biology I
3064 Principles of Biology II
3104 Fundamental Genetics
3113 Biogeography
3334 Genetics
3644 Invertebrate Zoology
4143/5143 Evolution & Systematics
4231/5331 Molecular Biology Lab
4233/5333 Molecular Biology
4444 Histology
5001 Discussions in Biology
5011 History of the Biological Sciences
5242 Biochemistry Lab
5243 Biochemistry
6003 Seminar

Spring Odd

1134 Anatomy & Physiology I
1144 General Zoology
1234 Anatomy & Physiology II
1333 Nutrition
1544 General Botany
2144 Microbiology
3003 Intro to Clinical Lab Sci
3033 Field Zoology
3054 Principles of Biology I
3064 Principles of Biology II
3144 Physiology
3234 Comparative Anatomy
3334 Genetics
3344 Developmental Biology
3534 Systematic Botany
4001 Seminar
4021 Immunology Lab
4023 Immunology
4524 Parasitology
4684 Ecology
5012 Writing in the Biological Sciences
5253 Biochemistry
5743 Araneology

Fall Odd

1134 Anatomy & Physiology I
1144 General Zoology
1234 Anatomy & Physiology II
1544 General Botany
2144 Microbiology
3044 Bacteriology
3054 Principles of Biology I
3064 Principles of Biology II
3104 Fundamental Genetics
3113 Biogeography
3334 Genetics
3434 Entomology
4143/5143 Evolution & Systematics
4444 Histology
4463 Plant Anatomy
4714 Cell Biology
5001 Discussions in Biology
5011 History of the Biological Sciences
5242 Biochemistry Lab
5243 Biochemistry
5644 Advanced Genetics

Spring Even

1134 Anatomy & Physiology I
1144 General Zoology
1234 Anatomy & Physiology II
1333 Nutrition
1544 General Botany
2144 Microbiology
3003 Intro to Clinical Lab Sci
3054 Principles of Biology I
3064 Principles of Biology II
3144 Physiology
3234 Comparative Anatomy
3334 Genetics
3534 Systematic Botany
4001 Seminar
4021 Immunology Lab
4023 Immunology
4564/5564 Plant Physiology
4684 Ecology
5012 Writing in the Biological Sciences
5233 Mammalogy
5253 Biochemistry
5553 Electron Microscopy

Summer I

1134 Anatomy & Physiology I
1544 General Botany
2144 Microbiology
3534 Systematic Botany

Summer II

1144 General Zoology
1234 Anatomy & Physiology II
4693/5693 T Rainforest Ecology **(EVEN ONLY)**

WHAT CAN YOU DO WITH A BIOLOGY DEGREE?

The following opportunities are possible for those who hold a basic undergraduate degree in Biology; however, some of these require further training and/or graduate education.

Physician
Dentist
Veterinarian
Medical Technologist
Nurse
Microbiologist
Geneticist
Teacher
Scientific Writer
Optometrist
Speech Pathologist
Audiologist
Sanitarian
Physical Therapist
Exercise Physiologist
Histologic Technician
Botanist
Medical Entomologist
Fish Cultures
Nursery Owner
Forensic Service Technician
Phlebotomist

Fish, Game and Range Manager
Zoo and Museum Curator
Botanical Garden Curator
Forestry Manager
Plant Quarantine & Pest Control
Pest Inspector/Manager
Nutritionist/Dietician
Agronomist
Field Crop Management
Soil Scientist & Conservationist
Plant & Animal Breeder
Horticulturist
County Extension Agent
Ecologist
Medical Records Librarian
Paleontologist
Emergency Medical Technician
Herpetologist
Home Economist
Laboratory Manager
Aquarium Director