

**NAME**

**Department of Microbiology and Molecular Biology**

**College of Life Sciences**

**Faculty Development Plan****Teaching****Strengths**

I am excited about the subjects that I teach and for the opportunity that students have to learn about the medical laboratory science profession. I am focused on the students and I repeatedly tell them that the needs of the students come first in my priorities. I take as much time as necessary to help the students learn the material and meet with students frequently outside of class. Last semester I regularly had five to ten students in my office at a time asking questions about the material that we had covered in class.

**Weaknesses**

I have had little formal experience in teaching college courses. Last semester I team-taught MMBio 392 and 394, but the other instructor took the majority of the responsibility for grading and testing. Next winter will be my first experience teaching an entire course on my own. I am currently working with Mike Johnson from the CTL to develop these courses.

**Goals**

1. Invite at least three different faculty members to observe my teaching and provide feedback on how I can improve.
2. Continue working with Mike Johnson to develop MMBio 392 and 394.
3. Create a lab manual for MMBio 394.
4. Utilize new technology and approaches in teaching that will make MLS courses more relevant to the workplace and better prepare the students for their internships and future careers.
5. Integrate the gospel into all of my teaching.

**Plans to Accomplish Goals**

1. Specific faculty members that I am considering inviting to evaluate my teaching are Bill Zundel, Mary Davis, Don Breakwell, Scott Weber, and Eric Wilson. I will ask them to give me feedback on both my teaching technique and the content of my lectures.
2. I am working with Mike Johnson to develop the MMBio 392 and 394 courses with a greater emphasis on data interpretation and critical thinking/decision making.

3. The current lab manual for MMBio 394 is outdated. I plan to write a new manual with updated information and relevant materials that will be used in the class. The manual will be written in SOP format, similar to what is used in hospital laboratories.
4. I am planning to acquire a microscope with a Wi-Fi camera that students will be able to connect to with their iPads. Each student in the MLS program is given an iPad to use for the semester, and students will be able to take screenshots on their iPads of what is seen on the microscope for their personal study. I will also be able to use the camera to record videos with audio explanation of blood slides for students to study outside of class. I am also considering acquiring a hematology analyzer that will allow students to experience using an automated instrument to produce lab test results. This will provide students with the opportunity to practice performing quality control and preventative maintenance measures.
5. I feel that teaching a class on the study of blood will allow me to bring out some direct connections to the Savior and His atonement. I want to help the students better understand the Savior as we study hematology. This will take study, thought, prayer, and purposeful lecture preparation. As I try to keep the Savior in mind and keep His commandments, I hope to be able to emphasize his central role in our lives.

### **Relationship between Goals and Department and University Aspirations and Needs**

The MLS program has a unique responsibility to prepare students to be successful in this clinical profession. My goals are consistent with making the program more relevant to the profession and making my teaching more effective. I plan to integrate more of the gospel into my teaching, and in this way, I hope to provide an education that is both spiritually strengthening and intellectually enlarging.

### **Resources Needed to Accomplish Goals**

In order to accomplish these goals, I will need support and candid feedback from my peers. Their insights into teaching will help me to adjust my teaching techniques and become a more effective teacher. I will need funding to acquire new technologies that can be implemented in the classroom. I plan to write teaching enhancement grants furnished by the College of Life Sciences to secure the funding.

### **Activities and Accomplishments Thus Far**

Last semester I team-taught the hematology course and spent a significant amount of time working with students outside of class. I provided weekly test reviews and taught several lectures. I received exceptionally high student ratings for the course – 4.9/5.0 for the hematology lecture, and 5.0/5.0 for the hematology lab. I feel that these ratings reflect my efforts to help the students, and the fact that I had little power over their grades.

## **Professional**

My professional responsibilities consist of administering 80% of the clinical internship for MLS students, the placement of students at clinical sites for their internships, and the interviewing and ranking of applicants to the MLS program.

### **Strengths**

As a graduate of the MLS program, I have been through the clinical internship and I understand the benefits and difficulties that confront students participating in the internship. I also have experience working in the MLS profession, having worked as a medical technologist at Primary Children's Medical Center. I am familiar with the workings of the Intermountain Healthcare hospitals, and I am familiar with the efforts that hospital staff undergo to train BYU students as I was given a role in this responsibility as a new medical technologist.

### **Weaknesses**

I am less familiar with the other healthcare systems in Utah, namely IASIS and Mountain Star. I will need to become more familiar with these healthcare systems and their laboratory policies to ensure that our students are prepared to be placed in any healthcare system.

### **Goals**

1. Create packets that can be used by the students at any of our clinical sites.
2. Recruit more hospitals to participate in our internship program.
3. Unify the grading of students between our participating clinical sites.
4. Redo all of the exams and learning objectives for the internship.
5. Visit all of the clinical sites on a regular schedule.
6. Build and strengthen relationships with our education coordinators.

### **Plans to Accomplish Goals**

1. I am in the process of writing a new syllabus, creating professionalism objectives, compiling learning objectives, and creating a list of clinical testing competencies. I hope to compile all of these materials into a packet that will guide the student experience at each of the clinical sites. I am designing the materials to be flexible enough to fit with the various healthcare systems and laboratory sizes where our students intern.
2. In order to expand the MLS program, we will need to recruit more clinical sites where the students can intern. Along with Bill Zundel, we are currently working to place students at

- ARUP in Salt Lake City, and at the Mayo Clinic in Scottsdale Arizona. Other hospitals that I plan on contacting are Lone Peak Hospital, Mountain Point Hospital, and Davis County Hospital.
3. Currently the grading of students is done differently at each clinical site. Along with Bill Zundel, we are going to reevaluate the grading policy for student interns, and make a single policy that can be used by all of the clinical sites.
  4. The current exams for the internship need to be rewritten, along with the associated learning objectives. I plan to reduce the number of tests from 47 down to 21. I will write the 21 tests and associated learning objectives, and place them on Coursesites for the students to begin taking this summer.
  5. In order to evaluate the clinical sites, and strengthen ties with the clinical staff, I plan to regularly visit the facilities where our students intern. Many of these visits will take place in the summer. I will use these visits as an opportunity to build stronger relationships between the BYU MLS program and the clinical sites. I will also solicit feedback from the clinical staff on how our students could be better prepared for their internships.
  6. During my visits to the clinical sites, I will also take the opportunity to strengthen our relationship with the education coordinators. The education coordinators are key to overseeing the experience of the students who are interning. I will use our site visits to understand their needs, and how BYU can help them to be successful in their efforts to coordinate the student internship experience. I will also use the opportunity to express our appreciation for all that they do.

### **Relationship between Goals and Department and University Aspirations and Needs**

There is a strong need for the MLS program to unify the standards used by the various clinical sites to evaluate students. I am working to improve the clinical internship experience for both the clinical sites and the students so that it can provide exceptional training and experiential learning. My goals are aligned with the current needs of the MLS program, and support the mission of BYU that states: “the preparation of students must be excellent”, and “Students who graduate from BYU should be capable of competing with the best in their fields.”

### **Resources Needed to Accomplish Goals**

In order to accomplish these goals, I will need significant time and departmental support for travel to all of the clinical sites. These are located from as far south as St. George, UT, to as far north as Rexburg, ID.

### **Activities and Accomplishments Thus Far**

Thus far, I have completely redone the exams for the internship. I removed the 47 exams that were being used, and replaced them with 21 exams. I have also created learning objectives and

psychomotor objectives for the internship. I have begun visiting our clinical sites, and I will visit the remaining sites throughout the summer.

## **Citizenship**

### **Strengths**

I am a strong believer in BYU and its mission. I want to contribute to the University and make a difference. I am also excited to be a member of the MMBio department, and I hope to be able to support and contribute to the department.

### **Weaknesses**

I tend to be quiet, and it is easy for me to not be outgoing. I need to be more aware of what I can do to participate more fully in the department, and in my profession. I should work on developing strong working relationships with my colleagues in the department and in my profession.

### **Goals**

#### Department Citizenship

1. Be an active participant in the department.
2. Be willing to serve on a committee when asked to do so.

#### Professional Citizenship

1. Regularly participate in the ASCLS annual meeting and Clinical Laboratory Educators Conference.
2. Visit local high schools to educate students about the MLS profession.

### **Plans to Accomplish Goals**

#### Department Citizenship

1. I will make an effort to attend the department seminars as often as it is practical. I will also consistently attend department meetings and volunteer to help where I can with department activities, such as interviewing graduate school applicants and meeting with invited speakers.
2. I am willing to serve on a committee, and will give my best effort to serve well on the committee where I am assigned.

#### Professional Citizenship

1. I will make it a habit to attend at least one, and both when possible, of these professional meetings each year. I would also like to present at least one abstract a year at one of these meetings.
2. Working with Mary Davis, I would like to reach out to the local high schools to educate students about the MLS profession. This would most likely include presentations at career fairs or in class lectures at the high school where students will get some hands on exposure to the MLS field. I have identified teachers at Provo High and Timpview that we could contact in regards to this effort.

### **Relationship between Goals and Department and University Aspirations and Needs**

My goals will help to strengthen the department as I strive to be a consistent contributor. As I contribute to my profession, it will help to increase the visibility of BYU and the MLS program.

### **Resources Needed to Accomplish Goals**

I will need department support for travel to national meetings.

### **Activities and Accomplishments Thus Far**

Last February I attended the Clinical Laboratory Educators Conference and was able to network with many fellow educators. I will be presenting an abstract at the annual ASCLS meeting this summer.

## **Scholarship**

As a professional faculty I have no scholarship expectation. That being said, my expectations document states that publishing consistent with my teaching and professional responsibilities is encouraged. Stated below are my aspirations and goals to heed this encouragement, keeping in mind that this will be done in addition to my primary responsibilities as a professional faculty.

### **Strengths**

I enjoy coming up with and investigating new ideas. I get excited about the possibilities and good that can come from research. I enjoy trying new fields of research, and I have had a broad training experience in many areas of medically based research.

### **Weaknesses**

Due to my broad research training, it is easy for me to be unfocused. I come up with many more ideas than I could possibly pursue. In addition, I am now embarking on research in a field that is new to me – MLS pedagogy. I will need to familiarize myself with the current state of the literature, and learn the common practices of research in this field.

## Goals

1. Continue to collaborate with Mary Davis on our current education gap and iPad projects.
2. Present one abstract a year at either the ASCLS annual meeting or CLEC.
3. Read the literature on MLS pedagogy.
4. Begin formulating new ideas for pedagogy projects.
5. Be available to collaborate on research projects as time permits.

## Plans to Accomplish Goals

1. Mary and I are working on three manuscripts from our current work. We are considering expanding our research from a Utah-centric focus to a national level.
2. Presenting one abstract a year is not a lofty goal, but it will require that I make progress every year. This will help to keep me focused on moving my current projects forward, as well as looking for new projects to start.
3. I cannot contribute much to a field if I do not know what is happening in that field. I will begin reading the MLS pedagogy literature from the ASCLS *Clinical Laboratory Science* journal, and the microbiological/biological pedagogy literature published in the *Journal of Microbiology and Biology Education*.
4. As I read the literature and work on my current projects, I will keep an idea log of pedagogy research ideas that I can pursue. As some of the project near completion, I will begin new projects using ideas from my idea log.
5. I will take time to discuss my research interests and background with faculty members in my department. I will let them know that I am happy to collaborate on projects of mutual interest.

## Relationship between Goals and Department and University Aspirations and Needs

I believe that this research will help improve my teaching, and will improve the MLS program as I study ways to make MLS education more relevant. This also supports the mission of BYU which states “Scholarly research and creative endeavor among both faculty and students... are essential and will be encouraged.”

## Resources Needed to Accomplish Goals

At the present time, the research that I am involved with does not require any financial support other than for travel to conferences. The department generously provides this funding.

### **Activities and Accomplishments Thus Far**

I am currently involved in three research projects with Mary Davis, and we are in the process of writing manuscripts for each of them. I am taking two students to the ASCLS annual meeting this summer where we will present our research.



## **FDS Projects**

### **Citizenship**

For my citizenship project, I will focus on two specific goals. First, I will attend my department seminars as often as occasion will allow. Second, I will make an effort to get to know the other faculty members in my department. I will take time to meet with them and talk about their research interests. If I meet with two faculty colleagues each month, then I will have met with everyone in my department within the timeframe allotted to this project.

### **Professional**

For my professional project, I will develop a professionalism evaluation that can be used by our clinical sites. Currently each clinical site uses their own criteria to evaluate the professionalism of the interning students. I want to develop a document that can be used at all of the clinical sites to provide a uniform evaluation of the professionalism of our students.

### **Teaching**

## **Hematology**

### **MMBio 392**

Winter 2018, Credit Hours: 2.5

12:00-12:50 pm, M-Th

2055 LSB

**Instructor:** NAME

**Office:** 2135 LSB

**Office Hours:** W,Th 11:00 am – 12:00 pm

**Office**

**Phone:**

801-422-8757

**Email:** NAME@byu.edu

### **Prerequisites**

Acceptance into the MLS Program

### **Required Materials**

- McKenzie, Shirlyn, *Clinical Laboratory Hematology*, 3rd, Pearson/Prentice Hall, 2014

### **Course Purpose**

Through the principles of hematology, students will gain an understanding of the purposes of clinical testing in the area of hematology, learn how to make sound clinical decisions, and come to better understand the Savior.

## Course Description

The goal of the clinical laboratory science education program is to prepare the student in every way to meet the full professional responsibilities of a medical laboratory scientist.

## Course Learning Outcomes.

1. Understand the normal physiology of blood, including hematopoiesis, the production of hemoglobin, and blood cell maturation and function.
2. Understand the pathophysiology of hematological disorders, and correlate patient histories and lab results with the appropriate diagnosis.
3. Critically analyze and interpret information, and make sound clinical decisions when faced with situations commonly encountered in the clinical laboratory.
4. Have an improved understanding of the Savior and His atoning sacrifice.

## Classroom Procedures

The student should expect to spend 4 hours in class, at least 8 hours outside class in order to perform in a satisfactory manner. This amount varies with the student and does not guarantee an "A" grade. Grades are based on quizzes, attendance, and examination scores. The comprehensive exam counts double.

## Participation

Students are expected to come to lecture and take notes. Attendance will be taken using the iClicker.

## Recommended Study Habits & Tips

You are encouraged to share your knowledge with other students through tutoring and study groups--it is very win-win. Teaching is not only an effective way of learning; it impacts lives and creates lasting friendships. Even if you don't need help, don't miss one of the most rewarding experiences that student life has to offer and make a difference.

## Assessment Breakdown

Assessments	Points Possible
Attendance (% of possible)	100
3 Quizzes (50 points each)	150
3 Exams (100 points each)	300
Comprehensive exam (counts as 2 exams)	200
Total	750

## Assignment Description

Quizzes will be given at the beginning of class. Students will have 20 minutes to complete the quiz. Exams will be administered in the testing center.

## Grading Procedures

Grades are determined by dividing the total points by the total points possible. Letter grades are based on the following breakdown:

A	93-100	A-	92-90	B+	89-88
B	85-83	B-	82-80	C+	79-78
C	77-73	C-	72-70		

If a student receives less than a C-, his/her application to the MLS program will be reconsidered. A student may not receive less than 70% on the comprehensive exam.

## Course Schedule

<u>Date</u>		<u>Lecture</u>	<u>Reading Assignment</u>
Jan.	8	Introduction - CBC	
	9	Hematopoiesis	Ch. 3,4
	10	Leukocytes	Ch. 7,8,9
	11	RBCs and morphology – <b>Quiz #1</b>	Ch. 5,10
	15	Holiday	
	16	Granulocyte Disorders	Ch. 20
	17	Lymphocyte Disorders	Ch. 21
	18	RE System & Monocyte/Macrophage Disorders	Ch. 20
	19	<b>Exam #1</b>	
	22	Microcytic Anemias	Ch. 11,12
	23	Normocytic Anemias	Ch. 16
	24	Macrocytic Anemias	Ch. 15
	25	Hemolytic Anemias – Day 1 – <b>Quiz #2</b>	Ch. 17,18
	29	Hemolytic Anemias – Day 2	Ch. 19,20
	30	Beta Thalassemia	Ch. 14
	31	Alpha Thalassemia	Ch. 14
Feb.	1	Qualitative Hemoglobinopathies	Ch. 13
	2	<b>Exam #2</b>	
	5	Leukemia—Introduction	Ch. 23
	6	Leukemia—MDS	Ch. 25
	7	Leukemia—M <sub>0</sub> -M <sub>4</sub>	Ch. 26
	8	Leukemia—M <sub>5</sub> -M <sub>7</sub> – <b>Quiz #3</b>	Ch. 26
	12	Leukemia—Lymphocytic	Ch. 27

	13	Leukemia—Lymphocytic	Ch. 28
	14	Myeloproliferative Disorders	Ch. 24
	15	Lymphomas	Ch. 28
	16	<b>Exam #3</b>	
	19	Holiday	
	20	Review	
	21	Review	
	22	Case Studies	
	23	<b>Comprehensive Exam</b>	

## Course Policies

### Academic Honesty

The first injunction of the BYU Honor Code is the call to be honest. Students come to the university not only to improve their minds, gain knowledge, and develop skills that will assist them in their life's work, but also to build character. President David O. McKay taught that "character is the highest aim of education" (The Aims of a BYU Education, p. 6). It is the purpose of the BYU Academic Honesty Policy to assist in fulfilling that aim. BYU students should seek to be totally honest in their dealings with others. They should complete their own work and be evaluated based upon that work. They should avoid academic dishonesty and misconduct in all its forms, including but not limited to plagiarism, fabrication or falsification, cheating, and other academic misconduct.

### Honor Code

In keeping with the principles of the BYU Honor Code, students are expected to be honest in all of their academic work. Academic honesty means, most fundamentally, that any work you present as your own must in fact be your own work and not that of another. Violations of this principle may result in a failing grade in the course and additional disciplinary action by the university. Students are also expected to adhere to the Dress and Grooming Standards. Adherence demonstrates respect for yourself and others and ensures an effective learning and working environment. It is the university's expectation, and my own expectation in class, that each student will abide by all Honor Code standards. Please call the Honor Code Office at 801-422-2847 if you have questions about those standards.

### Plagiarism

Writing submitted for credit at BYU must consist of the student's own ideas presented in sentences and paragraphs of his or her own construction. The work of other writers or speakers may be included when appropriate (as in a research paper or book review), but such material must support the student's own work (not substitute for it) and must be clearly identified by appropriate introduction and punctuation and by footnoting or other standard referencing.

The substitution of another person's work for the student's own or the inclusion of another person's work without adequate acknowledgment (whether done intentionally or not) is known as plagiarism. It is a violation of academic, ethical, and legal standards and can result in a failing grade not only for the paper but also for the course in which the paper is written. In extreme cases, it can justify expulsion from the University. Because of the seriousness of the possible consequences, students who wonder if their papers are within these guidelines should visit the Writing Lab or consult a faculty member who specializes in the teaching of writing or who specializes in the subject discussed in the paper. Useful books to consult on the topic include the current Harcourt Brace College Handbook, the MLA Handbook, and James D. Lester's Writing Research Papers.

### Preventing Sexual Harassment

Title IX of the Education Amendments of 1972 prohibits sex discrimination against any participant in an educational program or activity that receives federal funds. The act is intended to eliminate sex discrimination in education. Title IX covers discrimination in programs, admissions, activities, and student-to-student sexual harassment. BYU's policy against sexual harassment extends not only to employees of the university, but to students as well. If you encounter unlawful sexual harassment or gender-based discrimination, please talk to your professor; contact the Equal Employment Office at 801-422-5895 or 367-5689 (24-hours); or contact the Honor Code Office at 801-422-2847.

### **Students with Disabilities**

Brigham Young University is committed to providing a working and learning atmosphere that reasonably accommodates qualified persons with disabilities. If you have any disability which may impair your ability to complete this course successfully, please contact the Services for Students with Disabilities Office (801-422-2767). Reasonable academic accommodations are reviewed for all students who have qualified, documented disabilities. Services are coordinated with the student and instructor by the SSD Office. If you need assistance or if you feel you have been unlawfully discriminated against on the basis of disability, you may seek resolution through established grievance policy and procedures by contacting the Equal Employment Office at 422-5895, D-285 ASB.

### **H1N1 Flu**

Students who have influenza-like illness should stay away from others for at least 24 hours after their fever is gone except to get medical care or for other necessities. Your fever should be gone without the use of a fever-reducing medicine, such as Tylenol. If you have cold symptoms please wear a mask in class.

## **FDS Course Development Grant Proposal**

### **Creating Hematology Case Studies**

My course development proposal is to create a series of hematology case studies that can be used by our students to practice critical thinking and blood disorder diagnosis. The case studies will cover anemias, leukemias, hemoglobinopathies, sepsis, congenital red blood cell membrane defects, disseminated intravascular coagulation, platelet disorders, and body fluid analysis. Each case study will include patient symptoms and medical history, results from the complete blood count and other blood work, and images of blood slides that show the characteristics of the disease being studied.

### **Resources Needed**

I will need the assistance of a student to help me compile the information for the case studies and take representative images of blood slides. Ideally, this student will be a MLS major, and will have taken MMBio 392 and 394, passing them both with a B or better. I will use the \$300 to pay the student \$10.00/hour, anticipating that each case study will take about one hour to create, with a goal of creating 20 case studies. This will leave some room in case any difficulties arise, requiring extra time in creating the case studies.