

Texas A&M University - Corpus Christi  
SYLLABUS

## BIMS/BIOL 3403.001 and .101; .102

### Molecular Biology

(4 Credits)  
Spring 2010

- Class Meetings:** Tuesday/Thursday 9:30 - 10:45 AM CI 122 (or ST 301)
- Laboratory:** 101: T 2:00 - 4:50 PM and 102: T 5:30-8:20 PM [ST 301]
- Prerequisites:** Genetics (Biol 2416) and Microbiology (Biol 2421)  
**Strongly Recommended:** Organic Chemistry
- Instructor:** Dr. Kirk Cammarata  
**Office:** ST 319 B  
**Lab:** NRC 3228  
**Phone:** 825-2468 (Office)  
825-2145 (Lab)  
**E-mail:** [Kirk.Cammarata@tamucc.edu](mailto:Kirk.Cammarata@tamucc.edu)  
**Office Hours:** [Subject to change pending advance notice]  
T 12:00 - 2:00  
W 4:00 - 5:00  
R 12:00 - 2:00

Other times by appointment or when available. Please note that you are welcome to come by my office or lab at anytime, though you may wish to call first. I will be glad to help you if I am not busy. I may be at lab on M, W, F and in ST301 T between class & Lab

#### Required Texts:

Watson et al., (2008) "Molecular Biology of the Gene" 6<sup>th</sup> Edition,  
ISBN 978-0-8053-9592-1, CSHL Press/Pearson/Benjamin Cummings

**Optional Text:** A Genetics or Introductory Biology textbook  
Available at used book stores, online, or borrow.

#### Course Overview

This course explores the basic techniques and scientific context of molecular biology, with an emphasis on cloning and recombinant DNA technology. An emphasis will be on

experimental approaches and the laboratory activities. The lecture portion of the course will support the laboratory activities and cover basic molecular genetics such as nucleic acid structure and function, gene expression and regulation. Advanced concepts of regulation, genomics/bioinformatics, chromatin structure, recombination, and transposition will be considered as time allows. Laboratory will focus on the practice of techniques central to cloning, recombinant DNA manipulation and molecular identification applications in a variety of biological disciplines. Advanced laboratory topics include DNA sequencing and analysis of polymorphisms.

### Student Learning Outcomes

Upon successful completion of this course, the student will understand:

1. Basic nucleic acid structure and function
2. Molecular mechanisms of gene expression and regulation
3. Molecular mechanisms of recombination
4. The molecular mechanisms underlying recombinant DNA technology
5. The context and application of genomics/bioinformatics

Upon successful completion of this course, the student will have practiced techniques central to recombinant DNA technology and cloning, including:

1. DNA isolation, quantitation and assessment of structure, purity and quality
2. Genomic cloning and transformation
3. PCR and DNA sequencing
4. Safe molecular biology laboratory practices
5. Informatics approaches to molecular biology

**Evaluation:** Your final grade will be based on the percentage you earn out of the total possible points. Individual extra credit is not possible, but extra points may be built into exams or other assignments. Statistical manipulations, *if* used (at the Instructor's discretion), will be performed only once, at the end of the semester. A 10-point grading scale will be used:

**A = 90 - 100 % B = 80 - 89.9 % C = 70 - 79.9 % D = 60 - 69.9 % F = 0 - 59.9 %**

### Components of Course Grade (Tentative)

6 Quizzes @ 20 pts	=	120
Midterm Exam @ 150 pts	=	150
Final Exam (comprehensive)	=	150
[Additional Assignments @ Instructor's Discretion =		30
Lab Data, Quizzes, Reports, Assignments, Notebook =		150
<b>TOTAL</b>		<b>= 600</b>
<b><u>POINTS WILL BE DEDUCTED FOR LACK OF ATTENDANCE !!!</u></b>		

The time schedule may require adjustment. Additional assignments may or may not be provided at the Instructor's discretion. Such assignments might include homeworks, group projects, reading assignments, **pop-quizzes**, seminar attendance and review, computer-based assignments, etc. **Note that attendance in lab is mandatory; Points will be deducted for absences. Lab work will be performed in groups and your partner will depend on you. While the number of points available may vary, grading will be based on the lecture points weighted at 75% and the laboratory points weighted at 25%.**

For example, if you make 90 % of total points available for the lecture and 80 % of total points available for the laboratory portion, then your grade would be calculated as:

$$(0.9 \times 75) + (0.8 \times 25) = (67.5) + (20) = 87.5/100 \text{ possible} = B$$

*An assignment may be due during the last week of class (Study Week).* An attempt will be made to follow the time and evaluation schedules shown here. **It is the student's duty to attend each class session and be aware of all assignments, deadlines, changes, etc.**

#### **Other Course Requirements:**

- 1. All Exams are the property of the Instructor as they must be saved for course records.**
- 2. Attendance at all class and lab times is REQUIRED. Flexible scheduling will be utilized to maximize efficiency of our lab exercises. This means that lecture may occur in the lab period and lab may occur in the lecture period. Pop quizzes may be given at any time.**
- 3. Some attendance outside of normally scheduled lecture/lab times will be REQUIRED in order to complete the lab exercises. Because we will be doing project-type labs with specific end goals, problems or mistakes in lab may necessitate coming in after normal class hours to check on, finish or re-do an experiment.**
- 4. ALL E-MAIL COMMUNICATIONS WITH THE INSTRUCTOR OR LAB TA MUST BE MADE THROUGH YOUR OFFICIAL UNIVERSITY E-MAIL (@ISLANDER), BY UNIVERSITY RULE**
- 5. Lecture PowerPoint notes, outlines, data and other instructional material will be made available via the WEBCT website (Islander Online from TAMU-CC homepage). Everyone should register if you do not use this already. If you have never used WebCT before, click "Student Resources" near the top of the page and choose "Login Instructions" from the menu. Then follow the**

instructions. If any problems arise, please call the Online Help Desk at x2825 (825-2825 from off-campus).

**6. ALL STUDENTS ARE REQUIRED TO SUBSCRIBE TO THE MOLECULAR BIOLOGY LISTSERV. Important announcements, data, questions and answers, and sometimes assignments will be distributed via this listserv.**

To subscribe, send an e-mail to "[molbio-list-request@sci.tamucc.edu](mailto:molbio-list-request@sci.tamucc.edu)". **Please use your "Islander" e-mail address for this and all communications regarding class !** Make sure that your e-mail address appears in the "From:" heading, and that the word "subscribe" is typed in the subject line. You will receive a subscription acknowledgment confirming that you have done everything correctly. Some SPAM filters will not accept mass mailings, but you can adjust your settings to accept messages from this listserv. To post messages to the listserv, send to "[genetics-list@sci.tamucc.edu](mailto:genetics-list@sci.tamucc.edu)". **Because of security concerns, you must post messages from the computer account that was used to subscribe to the listserv.** At the end of class, please send an e-mail to "[molbio-list-request@sci.tamucc.edu](mailto:molbio-list-request@sci.tamucc.edu)" With "unsubscribe" in the subject heading. **Do not send unsubscribe messages to the listserv itself !** Please use this service to ask questions about class materials, dates, assignments, etc.

You are strongly encouraged to subscribe to the Opportunities Listserv using the same procedure: "[opportunities-list-request@sci.tamucc.edu](mailto:opportunities-list-request@sci.tamucc.edu)" This service provides notification of scholarships, research opportunities and job opportunities.

**7. Students should come prepared each day with textbook, lab notebook, calculator, and personal lab equipment. Supplies REQUIRED for lab include:**

- a. Lab coat
- b. Safety glasses or goggles
- c. Lab Notebook: Binder to organize handouts and data printouts
- d. Calculator
- e. Sharpie for labeling
- f. Closed-toe shoes
- g. A USB drive is recommended for capturing data files to be used in lab reports.

**8. It is important to do the specified readings BEFORE coming to class for coverage of that topic. Lecture will consist of an overview, answering questions and problem-solving. The PPT notes may not be reviewed in detail except in regard to specific questions. Quizzes will be used to make sure you stay on-track. You must take responsibility for your education.**

**Explanation of Assignments:**

**Exams** will comprise primarily multiple choice questions. Some may be setup as matching or fill-in the blank. Short answer/essay-type or problem questions are usually included. **Lab calculations are definitely included.** Some questions will require analysis and interpretation of data or experimental design to assess critical thinking skills. You should bring a calculator. The **Final Exam (Thursday, May 6 from 8:00 - 10:30 AM)** will be a comprehensive review of entire course content. All quizzes and exams will include material from the laboratory part of the course. **Cell phones should be turned off and put away during exams; You will not be permitted to look at them during exams and they cannot be used as your “calculator”.**

**Outside reading** may be assigned and provided on reserve at the library or via WebCT. **Homeworks** may be assigned from the text or from handouts. You are encouraged to get together and work on problem-solving as a group. However, any assignments must be turned in individually (unless specified otherwise) and be written ***in your own words, NOT COPIED from someone else.*** All assignments and examination answers must be legible to the Instructor. Illegible answers will receive a “0”.

**Rules:**

All TAMUCC policies are in force and described in the TAMU-CC catalog and in the Student Handbook.

**Policy on Academic Dishonesty:**

Academic dishonesty, in all its forms, including plagiarism, is not tolerated. Students found responsible for violating this rule WILL be prosecuted to the fullest extent of University Regulations (see the current TAMU-CC catalog). The following procedures will be enforced:

- You must be prepared to present a photo ID at all examinations
- Different test forms may be prepared for a single examination. Follow instructions
- If you leave an examination room—for any reason—you must hand in your test and you will not be allowed to resume the examination. Attend to personal matters (e.g., rest room visits) before the examination.
- Cell phones must be turned off AND put away BEFORE CLASS. You will not be permitted to look at your cell phone or other electronic devices (except calculators) during testing.
- You are not allowed to copy, photograph, scan or reproduce exams.

**LATE WORK will not be accepted, except as below, or unless otherwise specified.**

**Attendance Policy:**

Attendance is the student’s responsibility. You are responsible for the material covered in every lecture ***and lab***, even if it is not in the book, regardless of your attendance.

**Nothing** missed during an **unexcused** absence can be made up. An excused absence allows us to make alternative arrangements to complete an assignment. Only **unavoidable** absences are excused. Routine events (non-emergency medical visits, parent-teacher conferences, household or auto repairs) should be scheduled to avoid conflicts with class. **Plane tickets booked to conflict with class do NOT constitute an excusable absence.** An acceptable excuse *must* be:

- from an appropriate source (doctor, dentist, funeral director) who states the nature of the event **and applicable dates**
- In writing, on official letterhead, and signed (it will not be returned)
- **presented prior to, or within 1 week of,** the absence

**The instructor will make the final determination as to whether an absence is excusable or not. This policy also applies to students participating in University-sanctioned events (athletics), but in such cases, arrangements must be made at least 1 week in advance and documented on official letterhead and signed by the supervising faculty or staff member. NOTE: If you are faced with an extensive illness or family emergency that keeps you out of all your classes for an extended period, then contact the office of Dr. Eliot Chenaux, V.P. for Student Affairs, for assistance.**

**There are No make-up examinations:** For some scheduled events, you may arrange to take a lecture exam before, but not after, its scheduled time.

This policy also applies to students participating in University-sanctioned activities (such as athletics); however, in such cases, arrangements must be made at least one week ahead of time, and excuses may also be documented via a letter or memo on official university letterhead by the supervising coach or faculty member.

### **Policy on Disruptive Behavior:**

As adult university students, you are expected to act with courtesy and common sense. Disruptive, disrespectful, or abusive language/behavior towards anyone in class (student, staff, faculty) will not be tolerated and could result in permanent removal from class. This includes talking in class, insubordination, and **electronic disturbances (cell phones, pagers, gameboys, etc).** **Turn it off.** Children are not allowed in class.

### **Expectations:**

You are expected to attend all classes in a timely manner, take notes, ask/answer questions, and participate in group activities. Learning is more than spoonfeeding, memorization and regurgitation. While memorizing is an important *first* step, you should also be able to apply knowledge by linking data and synthesizing into useful concepts. This skill cannot be acquired by last minute memorization prior to an exam. You must work the problems conscientiously, really THINK about the concepts, in order to learn how to analyze something scientifically. Do not immediately jump to the answers.

**You are responsible for your own education.** Take notes in class as some new information may be presented. Read the book and handouts for further detail not covered in class. *If you don't understand, then please ask, or see the instructor after class.* **Don't allow yourself to fall behind.** Be diligent and thorough on written assignments and examination answers. If you are not sure of an answer, at least try. For many people, putting anything down on paper clarifies their thinking and helps with recall. Also:

- Be aware of university-imposed deadlines (ie drop dates)
- Be aware of test times and dates, including changes
- Work on all assignments in a timely manner. Seek help from the Instructor.
- Check your Quiz or Exam answers as soon as possible. Check for clerical errors. The test score is not the end of the learning process. Review tests to determine *why* you missed an answer. Correcting your mistakes is an effective way to learn material (*reflective learning*).
- Keep track of your progress in class.
- ***If it ain't working for you, change something !***

**Disability and Veterans' Services:** Texas A&M University-Corpus Christi is committed to providing persons with disabilities an equal opportunity to access campus facilities, resources and programs. The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. Support and accommodations are also available for returning veterans who experience cognitive and/or physical access issues in the classroom or on campus. Our Office of Disability Services arranges such support and academic accommodations. To make a request, or for more information, call (361) 825-5816 or visit Driftwood 101. It is important to contact the Office of Disability Services in a timely fashion as it will take time for them to review requests and prepare accommodations and accommodation letters.

**Grade Appeals:** The Texas A&M University-Corpus Christi University Rules and Procedures (Section B [Academic Program], Part 13 [Students]: 13.02.99.C2 [Student Grade Appeals] and 13.02.99C2.01 [Student Grade Appeal Procedures]) provides details regarding the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process. Consult the University Rules and Procedures specified above (accessible through the University Rules and Procedures website at [http://www.tamucc.edu/provost/university\\_rules/index.html](http://www.tamucc.edu/provost/university_rules/index.html)).

**Suggestions for Improving Course Performance:**

1. Attend all lectures and laboratories in a timely manner.
2. Take notes, ask/answer questions, and participate in group activities.
3. If you don't understand, then please ask, or see the instructor after class.
4. Purchase and read the assigned textbooks for further detail not covered in class.
5. Use WebCT to keep your notes thorough and up to date.
6. The textbook has numerous features to assist your learning:  
A companion website with all textbook figures and other learning features:  
Chapter Outlines, answer to chapter thought questions, Glossary for  
**Key terms boldfaced in text**,

The textbook also has:

“Key Experiments” , “Techniques”, “Medical Connections”, and “Advanced Concepts” to explain scientific approaches, context and techniques  
Summary at the end of each chapter

7. Use the textbook's companion website, which contains both tutorials and animations:  
<http://www.aw-bc.com/watson>

**OUTLINE AND SEQUENCE OF LECTURE TOPICS (Tentative)**

1. The Central Dogma; Nucleic acids & genetic information
2. The importance of weak chemical interactions
3. Macromolecular structures of nucleic acids and proteins; Roles of intra- and inter-molecular interactions
4. DNA/RNA structure, topology and dynamic fluctuations
5. Techniques of molecular biology
6. Basic Genome Structure I:  
Prokaryotic structure  
Prokaryotic gene organization & structure  
Eukaryotic structure  
Eukaryotic gene organization & structure
7. Mechanisms of transcription
8. RNA processing/splicing
9. Genome Structure II: Chromosomes, chromatin and nucleosomes
10. Genome analysis (Bioinformatics) and Systems Biology
11. Transcriptional regulation in Prok.
12. Transcriptional regulation in Euk.
13. Regulatory RNAs
14. Genome Analysis & Systems Biology
15. Homologous recombination at the molecular level in Prok. & Euk.
16. Site-specific recombination & transposition



**Laboratory Activities:**

Time and materials permitting, the following laboratory activities are **tentatively** planned:

1. Safety and Molecular Biology Lab Orientation: Critical Operating Procedures
2. Micropipetting and Calibration, Centrifugation, Laboratory Calculations
3. Working with DNA, Dilution, Concentration by EtOH Precipitation
4. Nucleic Acid Quantification by Spectrophotometry
5. Gel Electrophoresis to Analyze DNA, Estimating Size & Structure
6. Plasmid DNA Isolation
7. Restriction Digestion and Interpretation/Analysis
8. Genomic DNA Isolation & Analysis (Human DNA)
9. PCR Amplification and Analysis (microsatellite)
10. Purification of Genomic DNA from Seagrass Epiphyte Communities
11. PCR Amplification of Community DNA and Analysis
12. Cloning PCR Products and Transformation into *E. coli*
13. Propagating Transformants
14. Screening Transformants (PCR and/or Restriction)
15. Amplification and PCR Cleanup for Sequencing (rDNA & microsats)
16. Fragment analysis of microsats
16. DNA Sequencing of Bacterial rRNA Genes
17. Analysis of DNA Sequencing Reactions
18. Bioinformatics to analyze microsats
19. Bioinformatics to Identify Bacterial Species from rRNA Gene Sequences

**IMPORTANT DATES:**

<b>Jan 13</b>	<b>Classes start</b>
<b>Jan 18</b>	<b>MLK Holiday</b>
<b>Jan 21</b>	<b>Last day to register/add</b>
<b>Mar 15 - 19</b>	<b>Spring Break</b>
<b>Apr 02</b>	<b>Last day to drop with a "W"</b>
<b>May 04</b>	<b>Last day of class</b>
	<b>Last day to apply for Summer graduation</b>
<b>May 06</b>	<b>Final Examination (8-10:30)</b>
<b>May 15</b>	<b>Spring Commencement</b>

**MOLECULAR BIOLOGY TENTATIVE CLASS LECTURE SCHEDULE**

Please note that this schedule is subject to change. Changes will be announced in class. It is your responsibility to attend class and be aware of changes.

<u>Week</u>	<u>Lecture</u>	<u>Date</u>	<u>Topic</u>	<u>Chapters</u> *	<u>Notes</u>
1	1	1/14	Course Introduction; Syllabus; "What Darwin Never Knew"	Video	
2	2	1/19	"What Darwin Never Knew" (Cont'd); Expanded Central Dogma, Nucleic Acids & Genetic Information	Video 2	
	3	1/21	Nucleic Acids & Genetic Information; Overview of Genome Expression; Importance of Weak Chemical Interactions	2; 3	
3	4	1/26	Macromolecular structures of nucleic acids and proteins; Roles of intra- and inter-molecular interactions	5	
	5	1/28	Molecular Structures of DNA/RNA: Topology & Dynamic Fluctuations	6	Quiz 1
4	6	2/2	DNA Topology; Molecular Biology Techniques I	6; 21	
	7	2/4	Molecular Biology Techniques I	21	
5	8	2/9	Molecular Biology Techniques I	21	
	9	2/11	Basic Genome Structure: Chromosomes & Prok vs Euk Gene Organization	7	Quiz 2
6	10	2/16	Transcription	12	
	11	2/18	Transcription	12	
7	12	2/23	RNA Splicing & Maturation	13	
	13	2/25	RNA Splicing & Maturation	13	Quiz 3
8	14	3/2	Introduction to Cloning Project		Journal Articles
	15	3/4	Genome Analysis: Bioinformatics	20	

<u>Week</u>	<u>Lecture</u>	<u>Date</u>	<u>Topic</u>	<u>Chapters</u> *	<u>Notes</u>
9	16	3/9	Genome Structure II: Chromatin & Nucleosomes	7	
		3/11	<b>MidTerm Exam</b>		<b>Midterm Exam</b>
		3/15 to 3/19	<b>SPRING BREAK</b>		<b>SPRING BREAK</b>
10	17	3/23	Genome Structure II: Chromatin & Nucleosomes	7	
	18	3/25	Molecular Biology Techniques II	21	
11	19	3/30	Molecular Biology Techniques II	21	
	20	4/1	Transcriptional Regulation in Prokaryotes	16	Last Day To Drop 4/3
12	21	4/6	Transcriptional Regulation in Prokaryotes; Transcriptional Regulation in Eukaryotes	16; 17	Quiz 4
	22	4/8	Transcriptional Regulation in Eukaryotes	17	
13	23	4/13	Regulatory RNAs	18	
	24	4/15	Regulatory RNAs	18	
14	25	4/20	Genome Analysis: Bioinformatics & Systems Biology	20	Quiz 5
	26	4/22	Molecular Biology Techniques III	21	
15	27	4/27	Homologous Recombination	10	
	28	4/29	Site-Specific Recombination	11	Quiz 6
16	29	5/4	Catch-Up or Review		
		5/6	<b>FINAL EXAM</b>		<b>8:00-10:30 AM</b>

**General Disclaimer:**

The Instructor reserves the right to modify the schedules and policies in this syllabus if and when necessary. Such changes will be announced during regularly scheduled lecture or laboratory periods, but no attempt will be made to contact students who were absent when an announcement was made. Nevertheless, all students are responsible for abiding by all announced changes, and it is a student's responsibility to

**obtain this information. Changes will be announced in a timely manner, but be aware that some modifications may be implemented without prior warning.**

### TENTATIVE LABORATORY SCHEDULE

Please note that this schedule is subject to change. Changes will be announced in class. It is your responsibility to attend class and be aware of changes.

<u>Week</u>	<u>Date</u>	<u>Laboratory Activity</u>	<u>Readings</u> *	<u>Notes</u>
2	1/19	Introduction Lab Safety & Operating Protocols Micropipetting, Lab Calculations Dilutions, Precipitating DNA	Lab1 Worksheet	
	1/21			
3	1/26	Lab Calcs, Gel Electro & Size Estimation, DNA Quantification by Spectrophotometry, Plasmid DNA Isolation	Worksheet Handouts	
	1/28			
4	2/2	Lab Calcs, Restriction Digests & Mapping	Worksheet Handouts	
	2/4			
5	2/9	Lab Calcs, Gel Analysis; Human Genomic DNA Isolation, Amplification by PCR	Handouts	
	2/11			
6	2/16	Gel Analysis; Cleanup for Fragment Analysis of microsatellites; Intro to DNA Sequencer & Fragment Analysis	Handouts	
	2/18			
7	2/23	Epiphyte Community DNA Project: Community DNA Isolation; Amplification by PCR		
	2/25			

<u>Week</u>	<u>Date</u>	<u>Laboratory Activity</u>	<u>Readings</u> *	<u>Notes</u>
8	3/2	Gel Analysis; Repeat PCR		
	3/4			
9	3/9	Catch-up		
	3/11	<b>Midterm Exam</b>		
	3/15 – 3/19	<b>SPRING BREAK</b>		
10	3/23	Epiphyte Community DNA Project: Topo Cloning		
	3/25	Epiphyte Community DNA Project: Pick Transformants & Propagate		Some after-hours work required this week
11	3/30	Epiphyte Community DNA Project: Process Transformants - PCR		
	4/1	Epiphyte Community DNA Project: Analyze Transformants by PCR & Gel, Streak for Single Colonies		Some after-hours work required this week
12	4/6	Epiphyte Community DNA Project: Re- Analysis of Pure Isolates		
	4/8	Epiphyte Community DNA Project: Large-Scale Amplification for Sequencing		Some after-hours work required this week
13	4/13	Epiphyte Community DNA Project: Cleanup PCR Reactions & DNA Sequencing		
	4/15	Epiphyte Community DNA Project: Cleanup Sequencing Reactions		Some after-hours work required this week
14	4/20	Epiphyte Community DNA Project: Load onto Sequencer		
	4/22	Epiphyte Community DNA Project: Retrieve Sequence Results		

<b>Week</b>	<b>Date</b>	<b>Laboratory Activity</b>	<b>Readings*</b>	<b>Notes</b>
15	4/27	Epiphyte Community DNA Project: Bioinformatics to Analyze Sequence Results; Re-Do Any PCR, Cleanup, Sequencing Reactions as Necessary		Some after-hours work required this week
	4/29	Epiphyte Community DNA Project: Final Analysis of Results		
16	5/4	Mop Up; Presentation of Results		
	5/6	<b>FINAL EXAM (Comprehensive)</b>		<b>Lab Notebooks Due 5/7</b>

### **NOTES FOR FIRST WEEK OF LAB**

#### **Complete and bring to lab:**

WebCT Safety Program  
 Bring Printout of Completion/Scores  
 Fill-out Emergency Contact Info and Safety Audit  
 Complete Background Information Survey

#### **Required Lab Supplies:**

1. Calculator
2. Binder to organize handouts & data
3. Labcoat
4. Safety Glasses
5. Closed-toe shoes, Hair ties for long hair
6. "Sharpie" for labeling tubes

#### **For Next Week:**

Complete SMTE Safety Quiz & Bring Printout  
 Complete "Lab Calculations" Worksheet