

PITTSBURG STATE UNIVERSITY
GENERAL BIOLOGY [BIOL 111] FALL 2018
SYLLABUS

Instructor: Dr. Andrew George

Email: adgeorge@pittstate.edu

Office hours: 322 Heckert-Wells Hall, Wed/Thur 1:00–2:00 or by appointment

Class hours: 213 Hughes Hall, **MWF, 11:00 – 11:50**

Textbook: Campbell Essential Biology, by Simon et al., 5th edition, ISBN 9780321967671 + Modified Mastering Biology, ISBN 9780134040721

Course description: Designed to acquaint the student with the fundamental principles and processes of life as found in animals and plants and their relation to the everyday life of humans. Corequisite: BIOL 112 General Biology Laboratory

General Education: This course counts toward the requirements in General Education for your degree program. General Education is an important part of your educational program at Pittsburg State University and has been designed to implement the following philosophy.

General education is the study of humans and natural world in their global context. The general education curriculum, therefore, acts as the heart of a university education by developing the capacities that typify the educated person and providing a basis for life-long learning and intellectual, ethical, and aesthetic fulfillment. General education examines the world around us and fosters an understanding of our interactions with the world and our place in the universe. General education celebrates the creative capacities of human kind and helps to preserve and transmit to future generations the values, knowledge, wisdom, and sense of history that are our common heritage.

Goals of General Education for this Course: A special emphasis of this course is to help you fulfill the following objectives for the biological sciences (II. 1-4), and (IV. i. 1-3). Upon successful completion of this course, you will be able to:

- Demonstrate an understanding of the basic principles, facts, and theories of the biological sciences.
- Demonstrate an understanding of the basic methods of inquiry, analysis, and description in the biological sciences.
- Demonstrate an understanding of how the natural sciences contribute to the general welfare of civilization.

Grading: Student assessment will be based on four exams, weekly quizzes, and reading assignments. An optional comprehensive final exam can be taken to replace the lowest of the four regular exams.

	<u>Points</u>
Exams (4)	400
Mastering Biology	100
<u>Quizzes, readings, etc.</u>	<u>100</u>

Total **600**

Final grades will be determined on a standard scale, based on a total of 600 points possible (A = $\geq 90\%$, B = 80–89%, C = 70–79%, D = 60–69%, F = $< 60\%$).

Attendance and Participation: To succeed in this course, it is absolutely essential that you attend lectures. There is no “attendance grade,” but quizzes cannot be made up. Lecture slides will **NOT** be posted on Canvas. Please show up on time, ready to engage the material.

If you are unable to attend class it is your responsibility to obtain notes and missed material. You must notify the instructor in advance for emergency or excused absences. Exam make-ups will be dealt with on a case-by- case basis, but will generally need to be taken **in advance** of the absence.

Schedule of topics: The following serves as a tentative outline, and may change slightly pending student interest in specific topics.

<u>Dates</u>	<u>Topic</u>	<u>Chapter</u>
Aug 20, 22, 24	Course Intro/Biology as a science	1
Aug 27, 29, 31	Molecules of Life/the Cell	3, 4
Sep 5, 7	Enzymes/Diffusion/Osmosis	5
Sep 10, 12, 14*	Metabolism/Photosynthesis	6, 7
Sep 17, 19, 21	DNA/Cell division	8
Sep 24, 26, 28	Inheritance	9
Oct 1, 3, 5	Genetics/Biotechnology	10, 12
Oct 8, 10*	Population genetics	13
Oct 15, 17, 19	Evolution of biodiversity	14
Oct 22, 24, 26	Microbes/Fungi	15
Oct 29, 31, Nov 2	Plants	16
Nov 5, 7, 9*	Animals	17
Nov 12, 14, 16	Ecology intro	18
Nov 19	Biosphere	18
Nov 26, 28, 30	Populations	19
Dec 3, 5, 7*	Communities/ecosystems	20
Dec 10*	Final Exam, Monday, 11:00	

NOTE: * = Exam dates

Academic Misconduct Policy:

http://catalog.pittstate.edu/contentm/blueprints/blueprint_display.php?bp_listing_id=162&blueprint_id=124&sid=1&menu_id=7980

Syllabus supplement (important dates and university information):

https://www.pittstate.edu/registrar/_files/documents/syllabus-supplement-fall-2018

PITTSBURG STATE UNIVERSITY
GENERAL BIOLOGY [BIOL 111-99] FALL 2017
SYLLABUS

Class Meets: 16 Weeks Online (Aug 21 - Dec 15, 2017)
Instructor: Dr. Anuradha Ghosh
Office: Heckert-Wells 321
Email: aghosh@pittstate.edu
Phone: 620-235-4532
Hours: 10AM – 12PM MTWThF (or by appointment)

Course description: Principles of biology from the cellular to the ecosystem level, including biochemistry, cell biology, molecular biology, genetics, and evolution will be covered. An introduction to animal and plant physiology is also included. This course is designed for students planning to major in biology or a related discipline. Co-requisite Biol 112 laboratory experiences.

Course delivery and technology requirement: All contents of the course including study materials and assignments will be delivered through canvas and allied support system. Course announcements and Discussion forums will be used for communication. Availability of desktop or laptop is preferred over mobile digital equipment. You will need the latest version of Internet Explorer, Firefox, Safari, or Chrome for a browser and be able to access to the PSU CANVAS website. It is your responsibility to have and use a suitable browser. Your browser must have the latest plug-ins for commonly used functions like Adobe, Flash, and Java for watching videos/animations or for using non-text study materials. You need to have access to and can use word processing software including the use of its basic functions.

All **course communications** must be from within the CANVAS message system (known as conversation). Expect to have responses to your message within 24 hours. Online courses often face issues with slower internet connection, browser failures, app maintenance, software outage. Be prepared for that and I strongly recommend to work on the assignments ahead of the due date-time. All the assignments are available to you for reasonable time period. Emails in the final hour regarding submission or execution difficulties will **NOT** be entertained.

“**Read Me First**” document uploaded on canvas is essential to read to get started.

Required Text book: Modified MasteringBiology with Pearson eText -- Standalone Access Card -- for Campbell Essential Biology (with Physiology chapters) (6th Edition). ISBN: 9780134040721. Selected chapters will be covered in this course.

Grading Criteria: *Chapter Quizzes:* 10 points each (Max. 20 quizzes = up to 200 points) – available online for two days – weighs 25% of total grade
Concept Papers: 5 points per chapter (up to total 100 points) – available online for one week – weighs 15% of total grade
Unit Exams: 50 points each (Max. 4 exams = up to 200 points) – available online for one day – weighs 40% of total grade
Dynamic Study Modules: 5 points per chapter (Max. 20 study modules = up to 100 points) – available online for 3-4 weeks – weighs 10% of total grade

Comprehensive Final Exam: 100 points – available online for two days – weighs 10% of total grade

Graded Discussion Forum: Points will be acquired based on individual participation

Total possible points = up to 700

There will be no traditional midterm exam. Grades will **NOT** be curved. Final grade will be determined based on cumulative points.

Grading Scale:

A = 100-90%
B = 89-80%
C = 79-70%
D = 69-60%
F = 59% and below

Course Learning Objectives:

After successful completion of this course, students will be able to...

1. List the sequential steps to the scientific method, formulate a hypothesis, interpret data and produce viable conclusion based on the experimental results.
2. List in order the steps in the hierarchy of biological system from an atom to an organism, compare and contrast the differences between four types of bonds, describe the properties of water and water chemistry.
3. Identify the four major categories of macromolecules considered essential to life, discuss their characteristics and classification.
4. Recognize the interrelationship of the various cellular organelles that maintain life, compare and contrast the differences between animal and plant cells.
5. Explain the biological processes, such as photosynthesis, cellular respiration, and cell division.
6. Interpret the laws of passing traits from one generation to another, relate application of biotechnology in improvement of life.
7. Illustrate the evolutionary line of organisms, list the characteristics and classification of plants and animals.
8. Describe the characteristics of the various communities and ecosystems.
9. Define and discuss the structural organization of animals at the level of tissues and organ systems such as digestive, circulatory, respiratory, immune, endocrine, reproductive, and nervous systems.
10. Describe the structure, function, lifecycle, and physiology of flowering plants.

Assignments and Late submission policy: Up to 24h delayed submission of the Concept Papers will be considered with a 20% deduction. After that it is a zero. For quizzes, unit exams, and comprehensive final exam – assignments will **NOT** be available for submission after due date-time and automatically will be graded zero. Submissions will require MyLab and Mastering module on canvas if not stated otherwise. Up to 2 chapter quizzes can be re-taken if missed. Dynamic study modules can be re-taken as needed throughout the semester. None of the unit exams or final exam will be retaken. Graded discussions will be closed for comments on due date and will not consider any late participation.

Attendance: Students not regular on online course and missing weekly assignments deadlines will be dropped with prior notice.

Special Concerns. Any student who may require some special arrangements to meet course requirements should contact the Director of Center for Student Accommodations at 620-235-4309 or Disability Support Services at 620-235-4185.

Students are responsible to provide faculty with this information by Tues Sept 3, 2013. Alternatives to Auditory and Visual content can be made in timely manner through the PSU Center for Accommodations.

<http://www.pittstate.edu/office/center-for-student-accommodations/index.dot>

<http://www.pittstate.edu/office/eoaa/disability-services/>

Academic Honesty: Academic integrity is absolutely necessary in online courses. Individual students are solely responsible for doing all the course work. Zero tolerance on cheating. No external digital aid should be used during assignments unless otherwise stated.

<http://www.pittstate.edu/audiences/current-students/policies/rights-and-responsibilities/academic-misconduct.dot> This is the URL for more information on PSU policies concerning academic honesty and integrity.

Other Information: Additional Information about courses, calendars, scheduling, etc. can be found at “Syllabus Supplement” for Fall 2017 semester-

<https://www.pittstate.edu/office/registrar/syllabus-supplement.dot>

Class Rules: Learner-learner and learner-instructor interactions should be respectful and collegial. All electronic communications conducted in the course of an online class are "public" communications in the same way that classroom exchanges are public. We must all adhere to the same principles of respect, professionalism, and concern that would be found in any classroom or office interaction.

Student Support:

Computer Technical Support – Generally speaking, I serve as the first line of tech support for computer and CANVAS issues. When reporting computer/CANVAS problems, if possible capture a “screenshot” and send it with your message. The “serious support” comes from the [Gorilla Geeks Help Desk](http://www.pittstate.edu/office/gorilla-geeks/) at (<http://www.pittstate.edu/office/gorilla-geeks/>).

Students Services Support – When help is needed in a variety of areas, consider the [PSU Campus Life Support](http://www.pittstate.edu/campus-life/support/) (<http://www.pittstate.edu/campus-life/support/>). Among the services offered or described include Student Health Services, University Counseling Services, Legal Resource Center, Office of Student Diversity, Gorilla Card and Banana Bucks, Technology Support, Tutoring, and The Writing Center.

Library Services – [Axe Library](#) provides a variety of services related to information retrieval, research, and other services.

Privacy Policies and Accessibility Statements for Third-Party Technologies

Below are links to privacy policies for several third party technologies that may be used in this online course.

Product	Privacy Policy
Adobe Products	http://www.adobe.com/privacy/policy.html
Canvas	https://www.canvaslms.com/policies/privacy
Google	https://www.google.com/policies/privacy/
Microsoft Products	https://privacy.microsoft.com/en-us/privacystatement/
Pearson Education	http://www.pearsoned.com/privacy-statement/
Respondus Products	https://www.respondus.com/about/privacy.shtml
Screencast-O-Matic	http://feedback.screencast-o-matic.com/tos
TechSmith Products	https://www.techsmith.com/privacy-policy.html
Turnitin	http://turnitin.com/en_us/about-us/privacy
YouTube	https://www.youtube.com/static?&template=privacy_guidelines

Example course and module objectives and assessment

Course Learning Objective #	Module Title	Module Learning Objectives	Learning Activities	Measurement (all graded activity)
1, 2, 3, 4	Module 1: Chapter 1	1.1 Compare discovery science and hypothesis-driven science. Provide examples of each.	Read chapter 1 (refer to e-textbook)	Complete Ch 1 MCQ quiz on MyLab&Mastering
		1.2 Distinguish between a hypothesis and a theory. Explain why natural selection qualifies as a scientific theory.	View related lecture ppt and animations uploaded on canvas module 1	Complete concept paper related to Ch 1 on MyLab&Mastering
		1.3 Describe seven properties or processes we associate with life.	Complete Ch 1 dynamic study module on MyLab&Mastering	Complete unit test 1
		1.4 Distinguish between the three domains and four eukaryotic kingdoms of life.	Comment on muddiest point forum created in module 1 on canvas	
		1.5 Compare and contrast artificial and natural selection.		
		1.6 Identify and explain information flow and how it functions to regulate processes within biological systems.		
		1.7 List and give an example of each level of biological organization, starting with an ecosystem and ending with atoms.		

Chapter 22: Nutrition and Digestion

Guided Reading Activities

Chapter Content: An Overview of Animal Nutrition

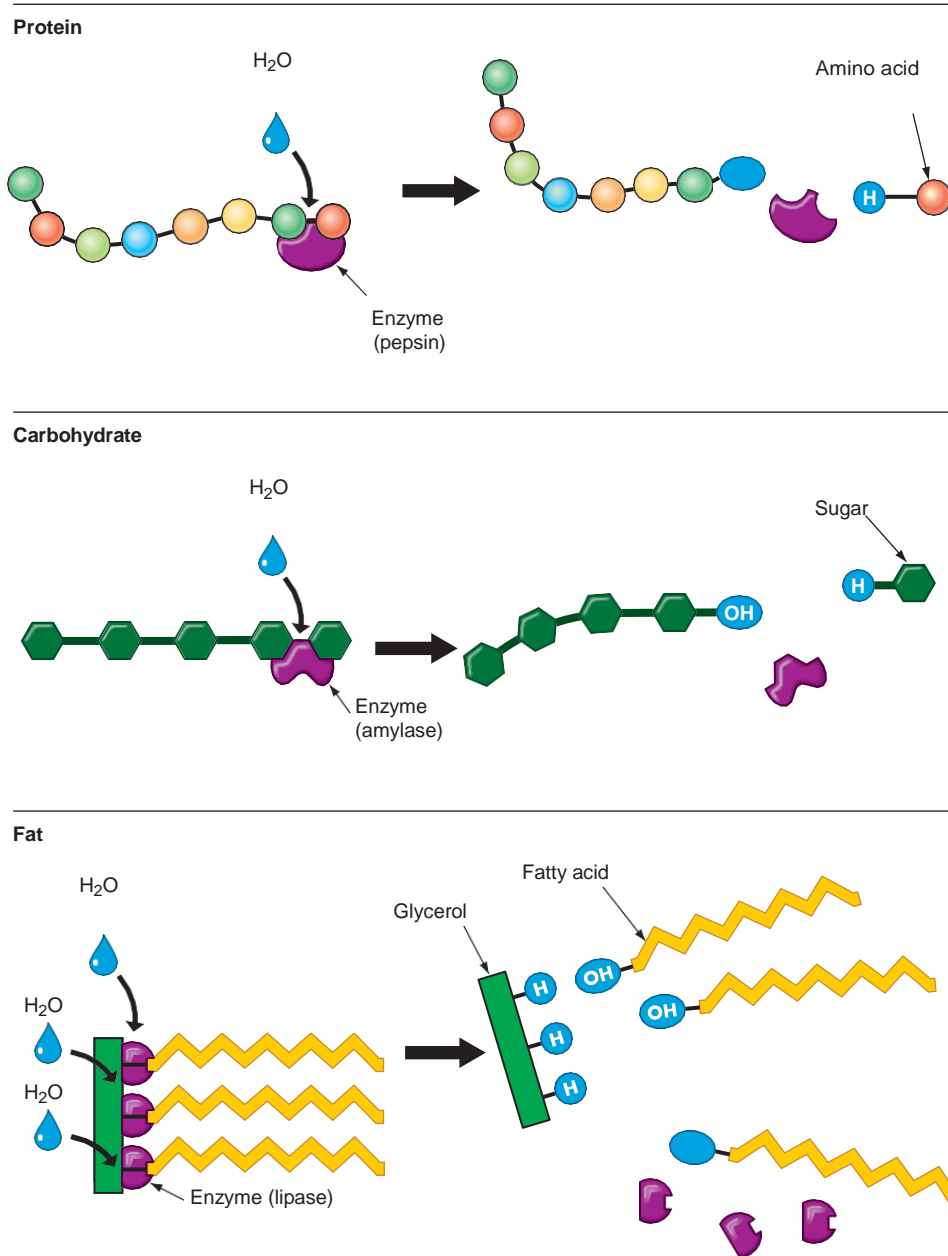
Complete the following questions as you read the chapter content—An Overview of Animal Nutrition:

1. List an herbivore, carnivore, and omnivore from where you live.

2. List the four stages of food processing in order from beginning to end: absorption, ingestion, elimination, and digestion.
 - 1.
 - 2.
 - 3.
 - 4.

3. True or false: Even though the protein in a drumstick is nearly the same as the protein in your leg, your body still breaks the protein down into small molecules. If false, make it a true statement.

4. What does the chemical digestion of fats, carbohydrates, and proteins require? Hint—there are two elements required.



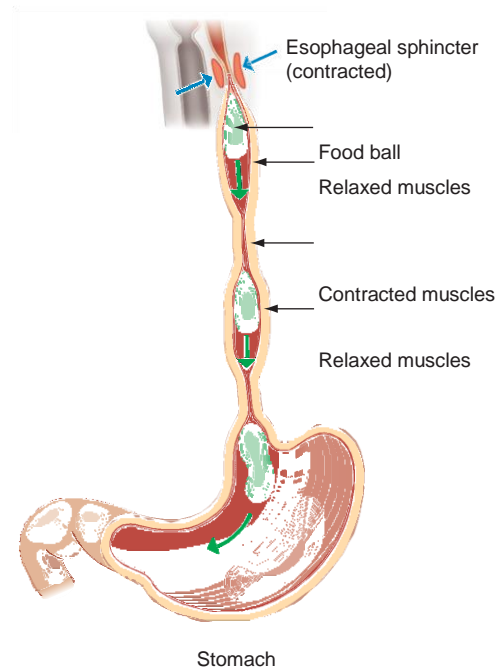
5. How does a gastrovascular cavity differ from an alimentary canal?

Chapter Content: A Tour of the Human Digestive System

Complete the following questions as you read the chapter content—A Tour of the Human Digestive System:

1. In a manufacturing assembly line, products get larger and more complete as they move along. Briefly explain how this process compares to your digestive system.
2. The long, hollow tube of your digestive system is called the_____.
3. Place the following organs in order with respect to their location along your digestive tract: pharynx, anus, stomach, mouth, and small intestine.
 - 1.
 - 2.
 - 3.
 - 4.
 - 5.
4. Digestion begins as soon as food hits your mouth. Briefly explain the two kinds of digestion that occur inside your mouth.

5. _____ is the rhythmic contractions of the digestive tract that moves food to your stomach.



6. What structure closes off the trachea during the swallowing of a ball of food?
- a. esophagus
 - b. epiglottis
 - c. esophageal sphincter
 - d. larynx
7. Briefly explain why the term “heartburn” is inaccurate.

8. Digestion occurs in which region of the small intestine?
 - a. jejunum
 - b. duodenum
 - c. ileum
 - d. gall bladder
9. The small intestine primarily absorbs_____, while the large intestine primarily absorbs_____.

Chapter Content: Human Nutritional Requirements

Complete the following questions as you read the chapter content—Human Nutritional Requirements:

1. _____is the form of energy that your cells require to perform their functions. This form of energy is made in the_____, in a process known as_____.
_____.
2. Briefly explain the relationship between a calorie and a kilocalorie.
3. True or false: Essential nutrients are substances that the cells of your body cannot make themselves. If false, make it a true statement.
4. The major difference between vitamins and minerals is that vitamins are_____, whereas minerals are_____.

5. A common misconception about vitamins is that you can never have too much of a good thing. Briefly explain why this is an incorrect way of thinking with respect to vitamins. Your answer should include at least one example of what happens when you get too much of a vitamin.
6. How many slices of bread would you have to consume in order to meet your daily requirement of calories? Assume you have an 1,800 calorie a day diet.



Chapter Content: Nutritional Disorders

Complete the following questions as you read the chapter content—Nutritional Disorders:

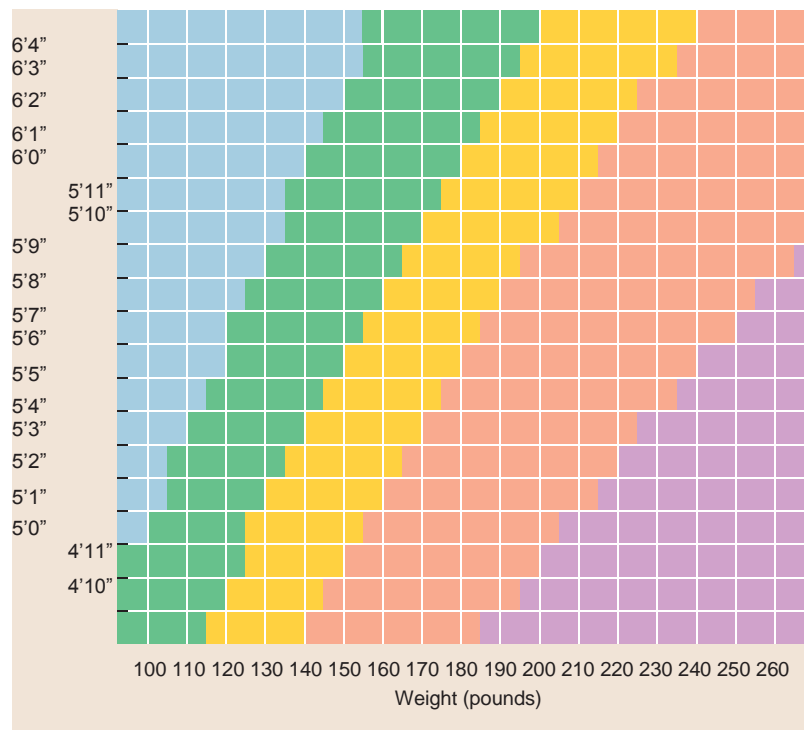
1. Nutritional deficiency due to insufficient intake or a medical problem is known as_____.

2. Explain how eating disorders like bulimia and anorexia lead to malnutrition.

3. People in developing worlds often get too little ____ in their diets.
 - a. protein
 - b. carbohydrates
 - c. fat
 - d. sugar

4. _____ is having a _____ that is too high, which is a ratio of your weight to height.

5. You are 6'1". According to the BMI table, what is your ideal weight range?

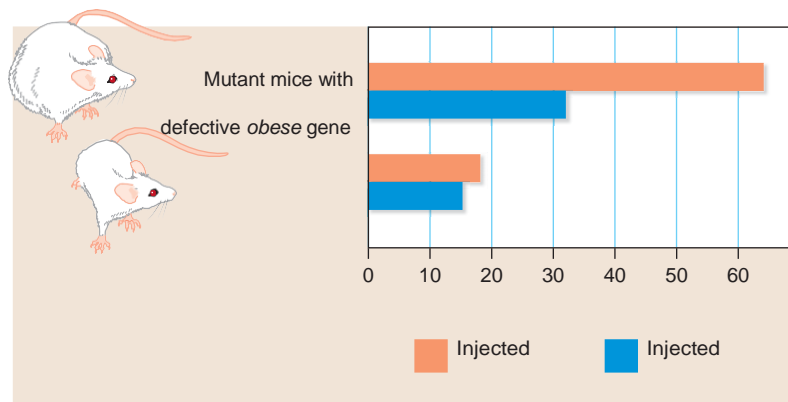


Major Theme Connection:

1. You just ate a bowl of mashed potatoes. The starch began chemical digestion in your mouth and finished in your duodenum with hydrolysis into glucose molecules. The fate of the starch is conversion to glycogen in your liver. What did the glucose travel through in order to get to your liver?

















Common Thread Connection:

1. What was the effect of leptin injections on mice that were leptin deficient due to a defective gene?



List of assignments

Course Summary:

Date	Details	
Fri Aug 25, 2017	 Introduction to MasteringBiology for Non-Majors	due by 8am
	 Self introduction post to an online learning community	due by 8am
Fri Sep 1, 2017	 Ch 1 quiz	due by 8am
	 Ch 2 Quiz	due by 8am
	 Ch 3 quiz	due by 8am
Wed Sep 6, 2017	 Concept paper 1 (ch 1, 2, 3, 4, and 5)	due by 8am
Fri Sep 8, 2017	 Ch 4 quiz	due by 8am
	 Ch 5 quiz	due by 8am
	 The muddiest points from Ch 1, 2, 3, 4 and 5	due by 8am
Sun Sep 10, 2017	 Ch. 01 First Group Dynamic Study Module	due by 11:55pm
	 Ch. 02 First Group Dynamic Study Module	due by 11:55pm
	 Ch. 03 First Group Dynamic Study Module	due by 11:55pm
	 Ch. 04 First Group Dynamic Study Module	due by 11:55pm
	 Ch. 05 First Group Dynamic Study Module	due by 11:55pm
Mon Sep 11, 2017	 Unit test 1	due by 8am
Fri Sep 15, 2017	 Reflection on chapter 1, 2,3, 4 and 5	due by 8am