

MSC 101 Y – Y1 Summer 1 2016

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SYLLABUS

Text: Invitation to Oceanography, Paul R. Pinet**

All media resources (articles, videos, etc.) in each unit are required reading/viewing.

COURSE OBJECTIVES: Every year there occur a number of newsworthy events involving the World's Oceans that may catch our attention. Spectacular examples are the Gulf of Mexico oil spill in 2010, and the great earthquake and tsunami that afflicted Japan in 2011. But there are also a number important but more usual events we pay attention to only when necessary, like Hurricanes, which are spawned when the ocean water gets very hot. There are also events that fall entirely under our radar – a shocking number of large ships such as tankers sink each year because of encounters with Rogue Waves. And there are ongoing processes we are barely aware of. It happens that Western Europe has a much more temperate climate than the East Coast of the USA, even though this coast is further south than Western Europe. This happens because the Gulf Stream transports a large quantity of heat in that direction. Unfortunately, not all of what happens in the oceans is due to Mother Nature. We as a species have considerable impact on what happens, and we need to learn what those high impact activities are.

Our aim in this course is to understand why and how phenomena such as those above happen in a scientific manner. For example, there arose a series of interconnected phenomena all having to do with the Gulf of Mexico oil spill and its consequences. But first of all, why is oil so far under the Earth's surface to begin with? What happens to it once it enters the ocean at depth? What features of the ocean currents in the vicinity of the spill "saved" South Florida from potentially devastating consequences? Aside from coasts and beaches, the consequences include affecting life within the Gulf and on its shores– how? Regarding the great Tsunami – what causes earthquakes and tsunamis, and what causes the water damage to be so great?

In order to answer these questions, and many more as well, we have to embark on a journey. In the end, we will reach our goal of understanding, but before we reach it we will have to island hop along the route. We have to assemble the scientific parts to reach our answers, but first we have to know what those parts are. Let's lift anchor!

1. Grades

The following remarks are a rough guide to the grading system. Please read the rest of this document carefully to obtain detailed descriptions.

First, online interaction is essential. Participation will count for 40% of your grade. Details on participation are described in detail below.

A term paper is required. Preparation of this paper consists of 2 parts: submission of an Outline and completion of the full paper. The outline will not be graded, but rather is a learning experience to help you prepare your final paper. The final paper will constitute 30% of your grade.

There are 3 exams covering 3 major blocks of units in the course. All of these consist of 50 multiple choice questions and will be taken online. Brief pre-test examples will be provided. A weight of 10% will be given for each of these tests. There is no final exam per se.

You will be informed of your score on each of these activities in numerical form. However, no “letter” grade determinations will be made until the end of the course and these will be awarded on a rank-order basis with the total scores in place.

2. How to read the SCHEDULE.

All UNIT work plus student assignments are listed in a **separate file, “Schedule”**. Here is a guide to understanding it by referring to an example:

UNIT	SUBJECT	BOOK CH.	DISCUSS	DATES
3	CHEM&PHYS 1	4	1	May 21-26

On the Blackboard site navigate to Course Intro/Units. There you will find Units 1-12, and when you enter Unit 3 you will find Unit Content and also Unit 3 Activities and Assignments. **IGNORE THESE COMPLETELY UNLESS YOU CAN USE THEM AS STUDY GUIDES!** They will not affect your grade.

Next go to the Assignments tab and find the assignment for Unit 3, which is in the form of a question for you to answer. Then go to the Course Discussion Blog and answer the question (or questions). In this example the entry Discuss says 1 because there is only one question.

Once you post your answer go ahead and read answers posted by others.

YOU MUST respond to at least 1 other post, commenting and discussing. It will not be enough for you to say “Nice job!” Your responses must be substantive.

Also refrain from saying “Why didn’t you think of this...?” If you think there is something useful to add, do it yourself. Also, if you have uncovered information not addressed in the Unit notes or related links, please give the reference so other students can access it.

The “Dates” column indicates when you should be conducting the Unit activities. This Summer term is brief so you must work through the course on a daily basis. You may of course advance

faster at your own pace, but it is essential that you do not fall behind. I will not accept work that is an accumulation of several weeks of work all posted at once.

Your blog activities should be *completed by the first day of the next Unit*. For example, Unit 3 studies should be completed by May 26. The first day of Unit 4 is May 28 - That's the day by which the submissions for Unit 3 are due. (The due dates are listed on the Assignments so you don't have to refer to the Schedule all the time.)

3. Outline

Your first task here is to identify a topic that interests you personally within the range of the subjects covered in the course. Examples: Hurricanes, tsunamis, marine mammals, coral reefs, global climate change. Then you will prepare an outline for your term paper.

In the syllabus section of the Bb site you will find a Template. This Template is based upon the format requirements of a well-respected scientific journal. Formats vary from journal to journal, and none are in any "standard" form. It is important that you formulate your Outline by the guidelines of this template.

Why? This is a science course, and for you to appreciate the manner in which scientists have to organize their thoughts and report their findings it is important that you undergo the exercise of writing in a scientific format. It is quite different from your English or History course essays.

The Outline will be examined and remarks on how to improve it will be forwarded confidentially to each student. Students may share this with the class if they wish to, but this is not required. After your review of the comments, you are free to develop a different topic, e.g., if it turns out your subject is not really appropriate.

The due date for the outline is indicated in the Schedule in boldface, as are the dates for the other time sensitive activities.

4. Full Paper

Think of your outline as a "skeleton" and the full paper as putting flesh on the bones. *It is essential to remember that your final paper must follow the same format as the outline*, and not just turn into a flowing essay in another format.

The final paper will be graded according to the following criteria:

- i) Originality and interest, 20%, i.e., why do I care, and why should anyone else care about this topic?
- ii) Background material, e.g., what is already known, how did we come to know it? 20%
- iii) Science, 40%, clearly stating the premises and/or hypotheses, using proper scientific language and the results of the study.

iv) Societal impact, 20% - - who or what is affected if the problems are not resolved or if they are d? Once again, who cares and why?

5. EXAMS

In the Schedule, you will find the dates for the exams. These are selected because they mark the end of a group of Units that have much in common. You will be responsible **ONLY** for the material in the group of Units above. Note that the exams are not cumulative. For example, Test 2 is on material after Test 1 and before Test 2, and not on material covered in Test 1.

**** Re the textbook: You are free to find any edition or any other introductory course you will see in the UM bookstore if it is more economical for you. Amazon evidently now has a rental program as well, although I don't know how it works. You must then pay close attention to the chapter headings, as they will not all follow the numbering in the Schedule.**