

PHYS 1101.2 “University Physics II”: SYLLABUS GUIDE for 2010
all course information is online via the SMU “WebCT/Blackboard” site! Accessed through SMUPort

Text: *Physics for Scientists and Engineers - A Strategic Approach*, 2nd Edition, by Randall D. Knight, published by Pearson Education Inc. / Addison Wesley

Professor A.J. Sarty Office: Atrium 307 Email: adam.sarty@smu.ca Phone: 420-5664

Schedule of Dr. Sarty’s Office Hours

DAY	TIME	PLACE	PHONE
Monday	11:00 am – 12:00 pm	AT 307	420-5664
Tuesday	1:00 pm – 2:00 pm		
Wednesday	10:00 am – 11:00 am		
Thursday	11:30 am – 12:30 pm		

This course is intended to provide a general knowledge of the basic concepts of physics relating to rotational dynamics, oscillations and wave motion (traveling waves, and superposition of waves), thermodynamics, and elementary electricity and magnetism. The course will begin discussing **textbook Chapter 11** (to complete Part II of the text, begun last term in PHYS 1100); we will then move to **Chapter 12** (rotation), **Chapter 14** (oscillations), **Chapter 20-21** (waves) – at that point in the course, we will cover selected topics in Thermodynamics from **Chapters 16-19** (exactly which portions will be communicated at that point in the course), and then we will complete the course with topics, as time allows, from **Part VI** “Electricity and Magnetism” (which starts at **Chapter 26**). The level of mathematical skill necessary to complete this course is a strong proficiency with algebra (especially word problems) and trigonometric functions, and also basic calculus (differentiation and integration of simple functions). Physics is based on solving problems associated with physical systems, and this class involves **both** solving word problems (which describe specific physical systems) **and** performing laboratory exercises (allowing you to make measurements associated with specific physical systems).

Note the course Blackboard/WebCT website will act as the **primary method**, outside of lecture periods, for **communicating** scheduling information to students (relating to, for example: dates homework assignments and/or reading quizzes are available / due, hints/notes relating to homework or midterms, reminders of imminent midterms and/or other deadlines, any general announcements relating to the course, etc.) . **All students are reminded that regular access to this course website (every couple of days throughout the semester) is a requirement** to ensure access to all important information relating to the course; more discussion of the course website is given later in this Syllabus.

A. Class Meetings

Each student is registered for the following class meetings:

- **Two lectures per week:** *Tues.* and *Thurs.* in Room 101 of the Atrium Building (10:00 to 11:15 am).
- **One Laboratory (Labs A-E)** – see times and room info. below; typically meet **every other week**.

There will also be additional (optional) meeting times scheduled each week for homework help. These will be advertised in class and on the WebCT/Blackboard course page as “**MP (Homework) Tutorial/Help sessions**”. These sessions will be very useful (aside from, or in addition to, Dr. Sarty’s office hours) for asking questions.

A.1 Lectures

The lecture periods will be used to:

- discuss the course material for which the student is responsible;
- provide physical demonstrations related to the material under discussion;
- to give examples of problems;
- to provide direct interaction between instructor and students by having students answer questions using the CPS response pads (“clickers”); and,
- to administer the midterm exam.

Lecture highlights will be posted on the course web page (WebCT/Blackboard) in the form of PowerPoint slides; these highlights will indicate the exact topics covered during the lecture and which textbook sections they were drawn from – note that these highlights do **not** contain all of the information which will be presented during the lectures (e.g. hand-written material on the overhead when solving/discussing problems). Therefore, students are *strongly* encouraged to attend the lecture periods (it is a demonstrated fact that there is a correlation between lecture attendance and student performance). Note also that, when the technology allows, the lectures will be recorded (audio of Dr. Sarty), so that the web-posting of lectures will also contain a “multi-media file” link that will allow you to have a link between the PowerPoint slides shown in class and the audio of Dr. Sarty speaking during the lecture (this may be helpful when studying, or particularly on those rare occasions that you miss lecture!).

To make the best use of the limited lecture time during the semester, discussion during lectures will be primarily devoted to activities aimed at increasing understanding of physics concepts and solving problems; this means that **students will get the most out of lectures if they have read the appropriate textbook material ahead of time**.

A.2 Participation During Lectures – “Clickers” in the Classroom

To enhance the active engagement of the students with the material being discussed in class, and allow a kind of dialogue between the students and the instructor on the physics concepts under discussion, this course will use the “wireless response system” which is available for use in most classrooms at SMU. In order to benefit from this system, students are required to purchase a “CPS” (Classroom Performance System) transmitter (or “clicker”) from the **Bookstore** which will be used during lectures – you will need to bring your CPS transmitter to lectures in order to participate and benefit from this portion of the course. A new CPS transmitter costs \$24.95(+tax), used transmitters (if available) cost \$21.95(no tax) and both can be sold back to the bookstore during their “book buy-back periods” after the course (you’ll get \$11.00 back). Further, **your transmitter will need to be “registered” online at eInstruction.com** so that your transmitter gets identified by me as belonging only to you (*note – the “Class Key” is K563701212*). Also: bundled with your new textbook is a “clicker rebate coupon” that you can mail to the textbook publisher for some money back (if you bought a new clicker). There is a once-per-semester fee to register your transmitter, and you have 2 options to pay this: you can pay with a credit card online for a fee of \$10 (US Dollars); or, you can purchase a “clicker access code” from the Bookstore for \$22.50(+tax). During lectures, between 1 and 4-6 conceptual questions will be asked, and you will answer the questions using your transmitter. The questions will be asked once during the lecture (before, or as, the material is covered), but your responses to these first questions are not saved for grading. The same questions, however, will be asked again at the end of the lecture – after the required material has been discussed – and these responses will be saved to make up the clicker-portion of your Active Participation grade.

A.3 Participation Before Lectures – Regular (about weekly) “Reading Quizzes” on Blackboard/WebCT

To make the best use of the limited lecture time during the semester, discussion during lectures will be primarily devoted to activities aimed at increasing understanding of physics concepts and solving problems; this means that students will get the most out of lectures if they have read the appropriate textbook material ahead of time. To encourage all students to read the textbook sections each week before the material is discussed in class, there will be several “Reading Quizzes” released throughout the semester that students will be required to complete on the course website. These Quizzes are designed to be relatively simple / straight-forward, designed only to remind students of a few particular definitions and concepts in the textbook material. The Quizzes will be available on the website a few days before they are due, with the due date/time being 15 minutes before a lecture (for example: a Quiz may become available on a Friday, and then due at 9:45am the following Tuesday morning). The

availability and due dates of each Reading Quiz will be announced clearly on the course webpage from week to week. Your results from these several Quizzes will make up the reading-quiz portion of your Active Participation grade.

A.4 Laboratory Meetings

Each student is registered to attend one particular lab section (either A, C, D or E). Your lab section actually alternates between performing a laboratory one week, and leaving you free the next week (good time for MP homework or help!). The general schedule is tabulated below, with more details on which week your section meets is given separately (and posted on the webpage) – more details about the labs from your Lab Instructor.

LAB SECTION	DAY	TIME	LAB ROOM	LAB INSTRUCTOR
A, D	Mondays	2:30 – 5:30 pm	MM 023	D. Clarke
B, E	Tuesdays	2:30 - 5:30 pm	MM 023	D. Clarke
C	Thursdays	2:30 – 5:30 pm	MM 023	J. Hurry

The purpose of the lab sessions is to gain hands-on experience with laboratory apparatus, to develop skills in performing experiments, and to learn methods of analyzing scientific data, including an understanding of experimental uncertainty and error propagation. There will be a total of 5 labs performed, including a “formal report”. More details on the labs, and the grading procedure and weighting, is contained in a separate “Lab Syllabus” document (available at the first lecture, and posted online at the course website). Laboratory manuals will be available in the Astronomy & Physics Student Society Room (Room MM 014A) at a for a cost of \$10.00; the same manual is used as we had for PHYS 1100.1 last fall (so if you have one of those, you don’t need to purchase another).

A.5 MasteringPhysics (“MP”) Homework HelpRoom

There will be a MP tutorial/help room (locations/times to be announced in class and on website – the room will be on the 3rd floor of the Atrium building this term). The room will be staffed by graduate student Teaching Assistants (“TAs”) - names of TAs to be confirmed later. The help room will have a few computers available so that you will be able to talk with the TA (**and each other**) while getting help with difficulties you may be having on your computer-based MP homework. Please take advantage of the times the room is open to work with your fellow classmates on the homework (in addition to any extra advice from the TA). The MP help room will hopefully also have extra tables set up to allow people to work on problems (alone, or with others in groups) before going to a computer – so this may provide a meeting point to form impromptu study groups.

B. Completion and Grading of the Course

The final course grade will be calculated using the grades from the **1 Midterm Exam**, the **Laboratory Portion**, the **MP Homework** problems, the **Active Course Participation Portion** (including the in-lecture “CPS” questions and the before-class Reading Quiz questions), and the **April Examination**. These components will be weighted in the following way.

Course Grade Components

Area	Grade
Laboratory	20 %
MP Homework Assignments	15 %
Active Course Participation: CPS (3.5 %), Reading Quizzes (1.5 %)	5 %
1 Midterm Exam (Tuesday, Feb. 16)	20 %
April Exam	40 %

C. The Course WebCT/Blackboard Page

A great deal of **required** information will be made available at the password-protected Saint Mary's WebCT/Blackboard web page, which can be accessed through your SMUPort login - click on the link to PHYS1101 under "My Courses". The PowerPoint lecture slides will be available for printing from this course webpage, as will detailed hand-written solutions to recommended textbook problems, course announcements, the Reading Quizzes (under "Assessments"), a course Calendar, and other information. A direct link to the MasteringPhysics homework webpage is also available on the course webpage. The goal of the course webpage is to provide you with the maximum amount of resources possible in one location, and you can choose which of these resources you find most useful to augment your own learning. The course webpage also is the primary means of communicating important course information throughout the semester from Dr. Sarty to the students – **please ensure that you check the course webpage a few times per week to check for announcements.**

D. MasteringPhysics ("MP") Homework Sets and Recommended Textbook Problems

Attempting and becoming competent in doing the recommended textbook problems (which will be posted week to week on the course webpage), and completing the MP homework set each week, are the best ways to prepare for the midterm and Final exams. The MP problem sets will be made available on the MasteringPhysics web page (www.masteringphysics.com - you don't really need to remember this address, since a direct link will be provided from the website); new MP assignment sets will be opened at the beginning of each new unit/chapter (and this will be announced in class, and on the course webpage, each week) – **assignments will be open and available to complete for at least 8 full-days** before the computer-enforced completion deadline on each assignment. A list of recommended textbook problems will be provided on the course web-site for each Chapter covered. The recommended textbook problems will **not** be turned in for grading, but instead are designed to act as a useful resource to help you complete the MP problems (and further emphasize the physics subjects/concepts I consider important). Note that **examination questions** will be based on those subjects covered in **both** the MP and the recommended textbook problem sets (**and** the concepts from the in-class CPS questions). Detailed solutions for the recommended textbook problems will be available on the course web-site. Try to solve the problems yourself first without looking at the solutions; if you need to use the solutions for help (which many times you will), then go back and try the same problems again afterward to see if you have learned how to do them on your own. **Memorizing the solutions will not help you**, since the goal of the course is to teach you the physics **concepts** and how to apply them.

Note that you will also need to **register** to use the MasteringPhysics software, by going to the MP website and following the detailed MP registration instructions posted on the course WebCT site; to register, you will need a **MasteringPhysics Student Access Code** – this Code comes as part of the new textbook "bundle" if you buy the textbook new from the Bookstore (if you do not buy a new textbook from the bookstore, you will need to purchase a MP StudentAccess Code separately at the Bookstore – the cost for this is \$42.00 + 13%GST = \$47.46). **If you registered last semester for PHYS 1100, you don't need any new registration (it's the same MP "course" as last fall).** NOTE: when registering online for this MasteringPhysics homework, you should use the following "Course ID": **SMUPHYS2009** (that's the same as was used for last semester's PHYS 1100).

E. Examinations: Midterm and Final

The exams (midterm and final) account for the majority of the weight for your course grade, and therefore clearly represent a very important part of the course – these are the only way for students to individually demonstrate their understanding of the physics discussed in the course. The April exam will be scheduled during the formal final examination period - exact time and location will be provided once known. The April exam will encompass **all material covered during the semester.**

E. Examinations: Midterm and Final (continued)

Below are a few rules and answers to common questions about the exams (midterms and final):

- The midterm will be given during the regular lecture period on **Tuesday, Feb. 16**. The midterm exam contributes 20% toward the final course grade.
- The material covered in the midterm exam will be on the chapters/units announced in class (and on course webpage), and based on the **concepts** of the homework, the recommended textbook problem sets, and the in-class CPS questions associated with the announced chapters/units.
- Students are expected to perform the midterm at the date/time scheduled. If you have a conflict (or miss) the midterm, contact me **as soon as possible** (in advance if at all possible) to discuss your situation; in general, changes in the time a midterm is written require an appropriate, documentable, reason.
- Students arriving late will be required to submit their exams by the same deadline as the rest of the class.
- Students will *not* be allowed to use their own calculators on the exams; instead, a basic scientific calculator will be provided to each student during the exam (a Casio fx-260Solar calculator). Each returned exam will only be accepted if the provided calculator is returned with the exam. Students will have opportunity to see/use these calculators during labs and in the MP Help Room.
- A one-page formula sheet will be provided for you on each exam.
- **Don't cheat.** At a minimum, anyone caught cheating will receive a zero for that entire examination. Please refer to the section on "*Academic Integrity and Student Responsibilities*" in the SMU 2009-2010 Academic Regulation (pages 22-30).
- Any questions/concerns of the midterm grade **must** be resolved within **2 weeks** of the hand-back date.

F. Resources for Students (Office Hours, Web Page, etc.)

I want you all to do well in this course. As has been indicated in the previous sections of this Syllabus, several resources are available to help you toward this goal:

- **Classes:** Please attend lectures. What you retain from these sessions may surprise you!
- **Professor's Office Hours:** I am available in my office for a total of 4 hours each week to help you with homework problems and any other matters that may arise during the course. My office hours are tabulated at the top of the first page of this syllabus (appointments may be made outside of these times).
- **"Virtual" Office Hours** – Emailing me! I am sometimes able to answer physics questions you may have through email. You may feel free to contact me by email, but please keep in mind the following couple of things: **(i)** I guarantee that I will reply to you within 2 "business days" – many times my replies to you will be much, much quicker (sometimes within minutes!), however I can only guarantee this slower turn-around time (since my ability to reply will depend on the status of my other university-related activities)...this simply means: if you email me right before the deadline of a homework set, there is no guarantee you'll hear back from me in time; but if you email me a few days before a deadline, you will for sure get a response that may help. **(ii)** Please use respect and common email courtesy when you send emails (I'll discuss more of this during the first class).
- **Weekly MP Homework Tutorial/Help Sessions:** a TA will be available at times/place to-be-announced. The room will be equipped with a few computers, so you will be able to work directly on your MP assignment during the session; room is also provided for you to work in groups on homework.
- **Course Web Page:** As indicated above, a web page containing information pertinent to this course will be maintained at the course website. This is the main communication mechanism between myself and all students regarding important, ongoing, items relevant for the course – please use the site regularly.

G. Some Sensible Advice

I want everyone to have fun passing this course, unfortunately some people find doing physics rather difficult. Below are a few tips that might help out:

- This course is no pushover; physics is based on **understanding**, not remembering. I will do all I can to help you, but you should be prepared to put some effort in to make sure you really do understand the concepts. Only *you* know if you really understand something or not! Try additional problems to test if you have understood the concepts.
- In answering any problem, always ask yourself “Is this answer sensible?”. Remember to put the **units** in!
- Attend all lectures.
- In order to prepare for the exams (midterm & final), make sure you understand and can do the MP problems and the recommended textbook problems. Do not just memorize the solutions.
- Use the textbook – you paid good money for it! Try to find time to look over a chapter **before** it is covered in class ... this will make your Reading Quizzes easy, and may help you always get the in-class CPS questions correct!.
- Find a study partner. *I strongly encourage students to study together. (The MP Help Room might help!)*
- Finally, don’t give up or sit for hours in vain trying to do the homework. Come and see me or the MP Help Room TA: usually you will be much closer than you think to being able to solve a problem.
- Don’t cheat – you only are cheating yourself of an education. **Note that the use of another student’s CPS transmitter for the in-class CPS questions will be considered cheating – please use only your own.**

H. Students with Disabilities

Students with disabilities needing academic accommodations should contact and register with the Atlantic Center of Support for Students with Disabilities (phone 420-5452; TDD only 425-1257). This should be done as soon as possible, preferably during the first week of classes.

I. List of Important Dates for SMU’s PHYS 1101.2 (Winter 2010)

- Jan. 5: First Lecture ... Students required to do the following:
 - Ensure they have their SMU “s#”, and can login to SMUPort, and access course “WebCT/Blackboard” webpage.
 - Obtain/purchase a “clicker” (CPS wireless responder), and register it for use in class by going to www.einstruction.com (and following instructions posted on course webpage); the “Class Key” to register your clicker is **K56370I212**. **ALL STUDENTS will need to do this (even if you were in PHYS 1100.1 last semester).**
 - Register/enroll to access MasteringPhysics homework website by going to www.masteringphysics.com (and following instructions posted on course webpage); the “Course ID” to register into the MP homework is **SMUPHYS2009**.
IF YOU WERE A STUDENT LAST TERM IN PHYS 1100.1 – YOU DO NOT NEED TO REGISTER FOR MP AGAIN ... just login to the MP Site as you did last semester.
- Jan. 11: **Labs Start** – see Lab schedule for your section’s day (and all other details relating to lab report deadlines, etc.)
- **Tuesday, Feb. 16: Midterm Exam** during regular Lecture
- Tuesday, Apr. 6: Last Lecture.
- Apr. 9-24 (Final-Exam period): Final Examination at time/location to be announced.