Welcome to PHYA11F
“Introduction to Physics - IB”

• **Instructors:** & **Course Coordinator:**
  - Office#: SW-511 & Tel: 416-287-7243
  - E-mail: tawfiq@utsc.utoronto.ca
  - High Energy Phys. (PHYA11F & PHYB56F)

• **Prerequisite:** Grade 12 Advanced Functions (MHF4U) and
  Grade 12 Calculus and Vectors (MCV4U)

• **Corequisite:** (MATA29H3) or MATA30H3 or MATA31H3
  - (Elective or already Graduated are Ok)

• **Course Description:**
  The course covers fundamental concepts of classical
  physics and its applications to macroscopic systems in
  one and three dimensions. It deals with two main themes;
  which are Particle and Fluid Mechanics and Waves
  and Oscillations. The approach will be
  phenomenological with applications related to life
  and biological sciences.

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Who can help you!

◆ **TAs in Practicals**

◆ **PHYSICS AID CENTER**

◆ **Facilitated Study Groups (FSG)**

  Harsh Parikh

◆ **Instructor (during office hours)**

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Facilitated Study Groups (FSG)

**Facilitator:**
Harsh Parikh, 4th Year Student

**FSG:**
- Weekly study sessions
- Meet new peers
- Improve your understanding of course material
- Increase your grades!
- Judgment-free zone!

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Administration & Syllabus

- Office hours: (Tuesday 13.30-14.30 and Friday 11.30-12.30 or by appointment)
- E-mails: Use U of T e-mail. Answer in 48h (Weekdays).
- Students with a disability: Register with the AccessAbilities Center (volunteer note takers)
- We use iClickers. 3% Bonus (Need to answer at least 75% of questions in class) {enter your UTORID & name as on ROSI to register your clicker on iClicker website}
- Drop Out! (See Coordinator)

Syllabus

- Text Book: “Physics for Scientists & Engineers” 3rd ed, Randall Knight + Student Workbook + Mastering Physics (optional)
- Homework (about 10 Assignments)
  - On Blackboard BB & on line (Mastering Physics) for more practice.
  - Course ID: MPTAWFIQ05076 (enter your UTOR id)
  - No late Assignment accepted
- web site: (Admin, Notes, Quizzes & Tests…etc) on Blackboard (BB)

Syllabus Cont...

- Practical: Run weekly. (Check schedule, start MOT2)
  - Mandatory! You are encouraged to attend!
  - Go to your practical group!
- Labs
  - Three practical sessions will be dedicated as Labs …
  - You will submit TWO Lab reports (one as a group & one individual)
  - Missing Lab (with acceptable written reason) make up arrangement within one week!
Syllabus cont....

Marking Scheme:

- Practical: 25% (2 reports 8%, Practical Notebook 15%, TA impression 2%)
- Term test: 30% (2 term tests; 15% each)
- Final exam: 45%

Syllabus Cont...

- Exam & Tests (Don’t memorize equations)
  - You will prepare a One page Formulae Sheet
  - 2 Tests & Final Exam
  - Quizzes: multiple choice questions + short answer
  - Tests: multiple choice questions + short open response + Problem solving
- Final Exam: (Cumulative)
  multiple choice + short open response + problems
Syllabus Cont...

• To succeed: Integration of Lecture/Textbook/Practical
• Extra Help: Tutors, FSG & Instructor. Also PHYSICS AID CENTER
• Coverage (Topics from):
  
  Tentative Schedule!
  
  – Mechanics:
    ➢ Ch 1-4 Kinematics 2 week
    ➢ Ch 4-8: Dynamics 2.5 weeks
  – Conservation Laws: Ch 9-11 2.5 weeks
  – Applications:
    ➢ Ch 12 Rotation 2 weeks
    ➢ Ch 15 Fluid & Elasticity 2 weeks

Syllabus Cont...

• Answering Questions
  – Answer in complete sentences
  – “Yes” or “No” is never a complete answer (only if you are asked to do so)
  – Explain why
• Extra Marks: (Be creative!)
  Original (new) solutions!

Is this course Difficult?

• YES & NO!!!
• IT IS CHALLENGING!

  Foundation+
  Problem Solving Skills
Syllabus Cont...

• Solving Problems (Check the textbook)
  – Show basic equation
  – Include drawing and units
  – Solve algebraically
  – Show substitution of numbers (at the end)
  – Use words & be Organized
  – Only 80% points for correct answer and minimal work
  – Communicate!

Role of Mathematics

• Crucial for advancing frontiers of Physics
• Crucial for developing a facility for using Physics
• Must know algebra very well & basic Calculus!
• (MATA29H3) MATA30H3 or MATA31H3 is a co-requisite
  – Will review some basics (if needed) in practical as we go along

Questions:
Survey (Large Classes)

Survey was performed in a large university lecture class.

When a bell rang, students were asked to write down what they were thinking or doing.

Survey

Approximately one-third are paying attention.

Survey

Approximately one-third are sleeping.
Survey

Approximately one-third are thinking about

Your first mission (should you choose to accept it!) is to be awake get your minds off and onto physics.

Learning at the University Level

<table>
<thead>
<tr>
<th>High School Level</th>
<th>University Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>⊗ Reproduce Class</td>
<td>⊗ Apply what is learned to new situations</td>
</tr>
<tr>
<td>⊗ Class is everything</td>
<td>⊗ Much learning occurs outside classroom</td>
</tr>
<tr>
<td>⊗ Instructor programs students</td>
<td>⊗ Instructor guides students</td>
</tr>
<tr>
<td>⊗ Almost no readings</td>
<td>⊗ Read for comprehension, many hours</td>
</tr>
<tr>
<td>⊗ Slow-paced style</td>
<td>⊗ Fast-paced style</td>
</tr>
</tbody>
</table>
I hear...
......I forget
I see...
......I remember
I do...
......I understand