Welcome to PHYA11F
“Physics for Life Science - IB”

- **Instructors: & Course Coordinator:** Prof. Salam Tawfiq
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- 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.

Who can help you!

- TAs in Practicals
- **PHYSICS AID CENTER**
- Facilitated Study Groups (FSG)
- Yazan Shamli Oghli
- **Instructor (during office hours)**
Facilitated Study Groups (FSGs) at UTSC

Average Grade + Attrition Data 2012-2016: BIO, CHM, MATH, LIN, MGT, PHY, STATS, OTHER depicted in Fig. 1 and Fig. 2 graphs

FSGs:
- Based on UMKC Supplemental Instruction model targeting high risk courses through offering peer-based support
- Weekly study sessions for students who want to meet peers and improve their understanding of course material and improve their grades
- Judgment-free zone
- Research has demonstrated that FSG attendance improves grades, increases course retention
- FSGs are voluntary study sessions run by undergraduate students who have completed and excelled in the course they are supporting

References:

Administration & Syllabus

- Office hours: (Tuesday 12.00-13.00 and Friday 12.00-13.00 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 with at least 50% correct) {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” 4th ed, Randall Knight + Mastering Physics & Student Workbook (optional)
• Homework (about 10 Assignments)
  – On line (Mastering Physics) for 2% & more practice.
  – Course ID: PHYA11F2017 (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 MO 12th)
  – 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%

PHYA11-2015 Grades

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<th>Grade</th>
<th>Percentage</th>
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<tr>
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Class average excluding exam no shows: 61.92%
Fails excluding exam no shows: 12.11%
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 5-8: Dynamics 3 weeks
    - Ch 9-11: Conservation Laws 2.5 weeks
- **Applications:**
  - Ch 12: Rotation 2.5 weeks
  - Ch 15: Oscillation 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!

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**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