

Welcome to PHYA11F



“Physics for Life Science - IB”

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

1. Blanc RA et al., 1983. Breaking the Attrition Cycle The Effects of Supplemental Instruction on Undergraduate Performance and Attrition. *Journal of Higher Education* 54(1):80-90
2. Congos DH and Schoeps N. 1998. Inside Supplemental Instruction Sessions: One Model of What Happens that Improves Grades and Retention. *Research and Teaching in Developmental Education* 15(1): 47-61.
3. Dawson P, van der Meer J, Skalicky J, Cowley K. 2014. On the Effectiveness of Supplemental Instruction: A Systematic Review of Supplemental Instruction and Peer-Assisted Study Sessions Literature Between 2001 and 2010. *Review of Educational Research* 84(4): 600-639.

Some of the Things You'll Learn...

- To study smarter, not longer, for exams
- To read the textbook/other materials strategically
- To learn and apply key terminology and concepts
- How to organize your lecture notes more effectively



Fig. 1 Mean final grades



Fig. 2 Mean course attrition % group



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

Original Grade Distribution

A	11%	B	13.5%	C	25.5%	D	33.5%
A+	3.5%	B+	2%	C+	3.5%	D+	11.5%
A	4%	B	6%	C	14%	D	11%
A-	3.5%	B-	5.5%	C-	8%	D-	11%
F	16.5%	OTH	0%	Average		Median	
F	16.5%	OTH	0%	60.30 %		60 %	

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!

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