

Welcome to PHYA10S

"Introduction to Physics - IA"



- **Instructors: & Course Coordinator:** Prof. Salam Tawfiq
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- **High Energy Phys, (PHYA10F, PHYB21S)**
- **Prerequisite:** *Physics 12U - SPH4U (Grade 12 Physics) & Calculus and Vectors (MCV4U) & Advanced Functions (MHF4U) (Elective or already Graduated are Ok)*
- **Course Description:** *The course is intended for students in physical, environmental and mathematical sciences. The course introduces the basic concepts used to describe the physical world with mechanics as the working example. This includes mechanical systems (kinematics and dynamics), energy, momentum, conservation laws, waves, and oscillatory motion.*

Registrar Report

Course Assessment Report

Courses In Progress

Used	Course	Title	Credits	Mark	Grade	Comments	Session
SCAR							
	BIOA01H3	Life on Earth: Unifying Principles	0.50	IPR	IPR		20149
	BIOA02H3	Life on Earth: Form, Function and Interaction	0.50	IPR	IPR		20151
	CHMA11H3	Introductory Chemistry II: Reactions and Mechanisms	0.50	IPR	IPR		20151
*	MATA30H3	Calculus I for Biological and Physical Sciences	0.50	IPR	IPR		20149
	MATA35H3	Calculus II for Biological Sciences	0.50	IPR	IPR		20151
	PHYA10H3	Introduction to Physics IA	0.50	IPR	IPR		20149
	PSYA01H3	Introductory Psychology: Part I	0.50	IPR	IPR		20149
	PSYA02H3	Introductory Psychology: Part II	0.50	IPR	IPR		20151

Course Enrollment

Used	Course	Title	Credits	Mark	Grade	Comments	Session
SCAR							
	CHMA10H3	Introductory Chemistry I: Structure and Bonding	0.50	58	D+		20149

High School Courses

OSSBIOLOGY, OSSCHEM, OSSOACA&G, OSSOACCALC, OSSOACENGR, OSSPHYSICS, OSSRELIGN

Administration & Syllabus

- Office hours: *(Tuesday. 12.00-13.00 & Friday 12.00-13.00) or by Appointment!*
- E-mail: (Weekdays) **Answer in 48h** (week-end?) and use your UofT e-mail only. tawfiq@utsc.utoronto.ca
- **Student with a disability: Register with the AccessAbilities.**
- **We use Clickers: (Bonus 3%)** (Need to answer at least 75% of questions in class) {enter your **UTORID** & your iClicker number to register your clicker on iClicker website). *If these are not entered accurately you will not receive the bonus grade!*
- **Go to your Practical group (No change after first week). Before Dropping See Instructor**

Syllabus

- Text Book: “Physics for Scientists & Engineers”, **Randall Knight + Student Workbook** + Mastering Physics
- Homework (about 9-10 Assignments will be posted on BB)
 - Done on line. **Mastering Physics (voluntary) and will be posted on Blackboard. You are highly encouraged to do problems.**
 - Will create Course ID: PHYA10S2017
- web site: (Admin, Notes,, Quizzes & Tests....etc) on **Blackboard (BB)**

Syllabus Cont...

- Practical (*every Wed. or Thur., start next Week*)
 - **Mandatory! You are encouraged to attend! (Missing 3 practical will result in a zero in practicals)**
 - **Go to your tutorial group!**
- Labs
 - **Three practical sessions** will be used as Labs ...
 - **You will submit TWO Lab reports (one as a group & one individual)**
 - **Go to your Section or Group!**
 - **Missing Lab (with acceptable written reason) make up arrangement within the same week only!**



Syllabus cont....

Marking Scheme:

- **Practical: 25%** (2 reports **8%**, Practical Notebook **15%**, TA impression **2%**)
- **Clickers 3%** (Bonus with 75% or more)
- **Term test: 30%** (2 term tests)
- **Final exam: 45%**

Syllabus Cont...

- **Quizzes & Tests (Don't memorize equations)**
 - You will prepare a *One page Formulae Sheet (with limited number of equations)*
 - **2 Quizzes + 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 & Instructors , FSG, Physics Aid Centre.
- Coverage (Topics from):

Tentative Schedule !

– **Mechanics:**

- **Dimensional Analysis** 1 week
- Ch 1-4 Kinematics (Review) 1.5 week
- Ch 4-8 : Dynamics 2.5 weeks
- **Conservation Laws: Ch 9-11** 3 weeks
- **Applications:**
- Ch 12 (Rotation) - (1 – 2) weeks
- Ch 14 Mechanical Waves – 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!
- Acquiring skills:

Foundation+
Problem Solving

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 !*
- *MATA30 or 31 is a co-requisite*
 - Will teach basics in practical as we go along

Learning at the University Level

High School Level

- Reproduce Class
- Class is everything
- Instructor programs students
- Almost no readings
- Slow-paced style

University Level

- Apply what is learned to new situations
- Much learning occurs outside classroom
- Instructor guides students
- Read for comprehension. Many hours
- Fast-paced style