Welcome to Physics 120

My name is Neil Alberding

This course covers mechanics — things like
kinematics: mathematical description of motion,
dynamics: how forces affect motion,
momentum and mechanical energy,
solid body rotations,
oscillations

Lectures and Tutorials

There are three lectures a week, 1 hr each

and one tutorial, 1 hr

no lab in this course. Physics 131 is a separate lab course that you may take along with Physics 121.

If you like lab with course you can take Physics 140/141 in Surrey

Welcome to Physics 120

Your required course material:

smartPhysics

www.smartphysics.com

by Gary Gladding, Mats Selen, and Tim Stelzer
(W.H. Freeman & Company)

smartPhysics and Course Overview

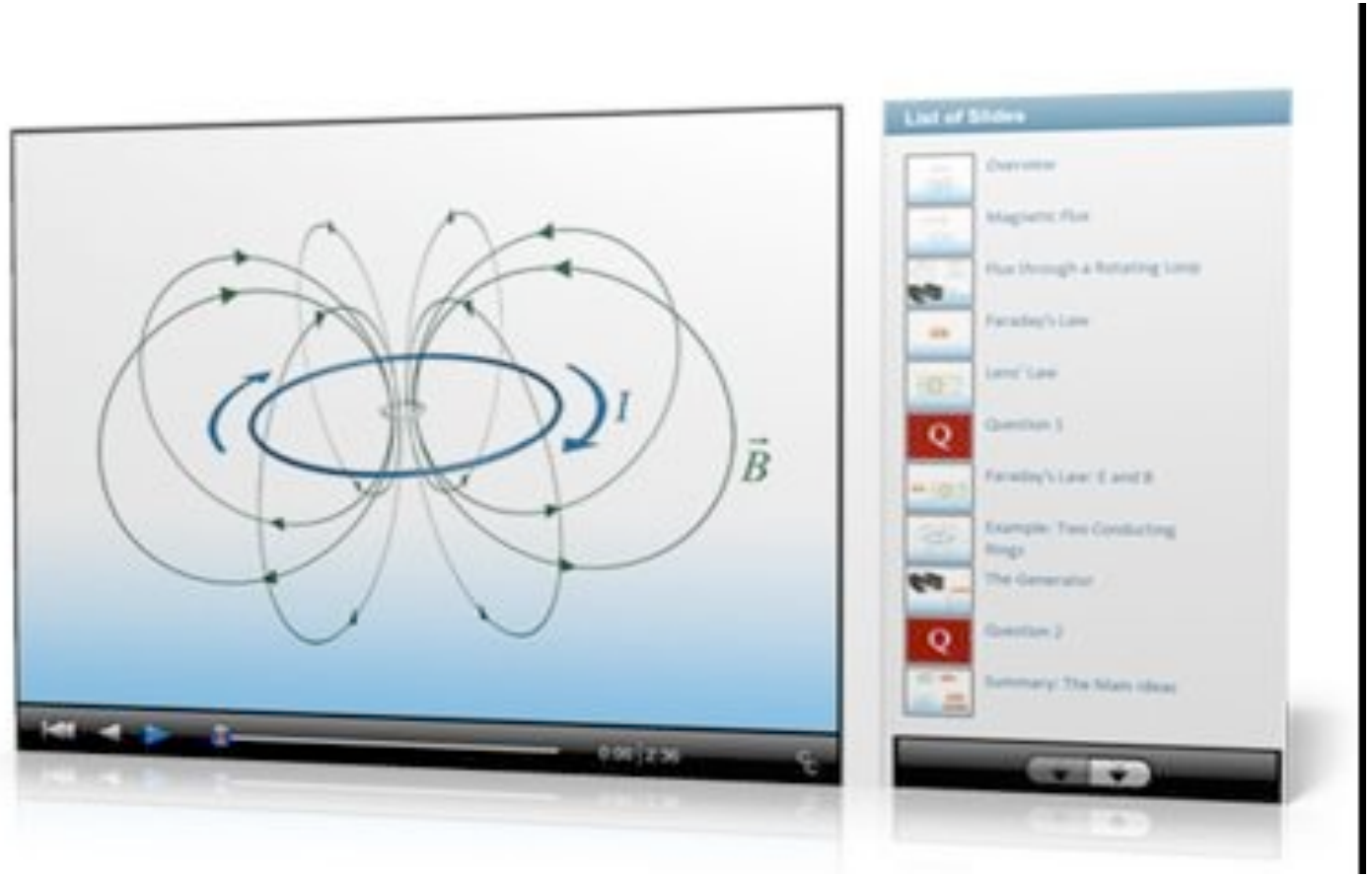
smartPhysics includes:

1. **Online PreLectures (animated lessons, completed *before lecture*)**
2. **Online CheckPoints (quizzes to check knowledge, completed before lecture)**
3. **Lectures (interactive, with clicker activities)**
4. **Online homework exercises**

Optional Textbook: Tipler & Mosca: *Physics for Scientists and Engineers*, 6th ed (or earlier)

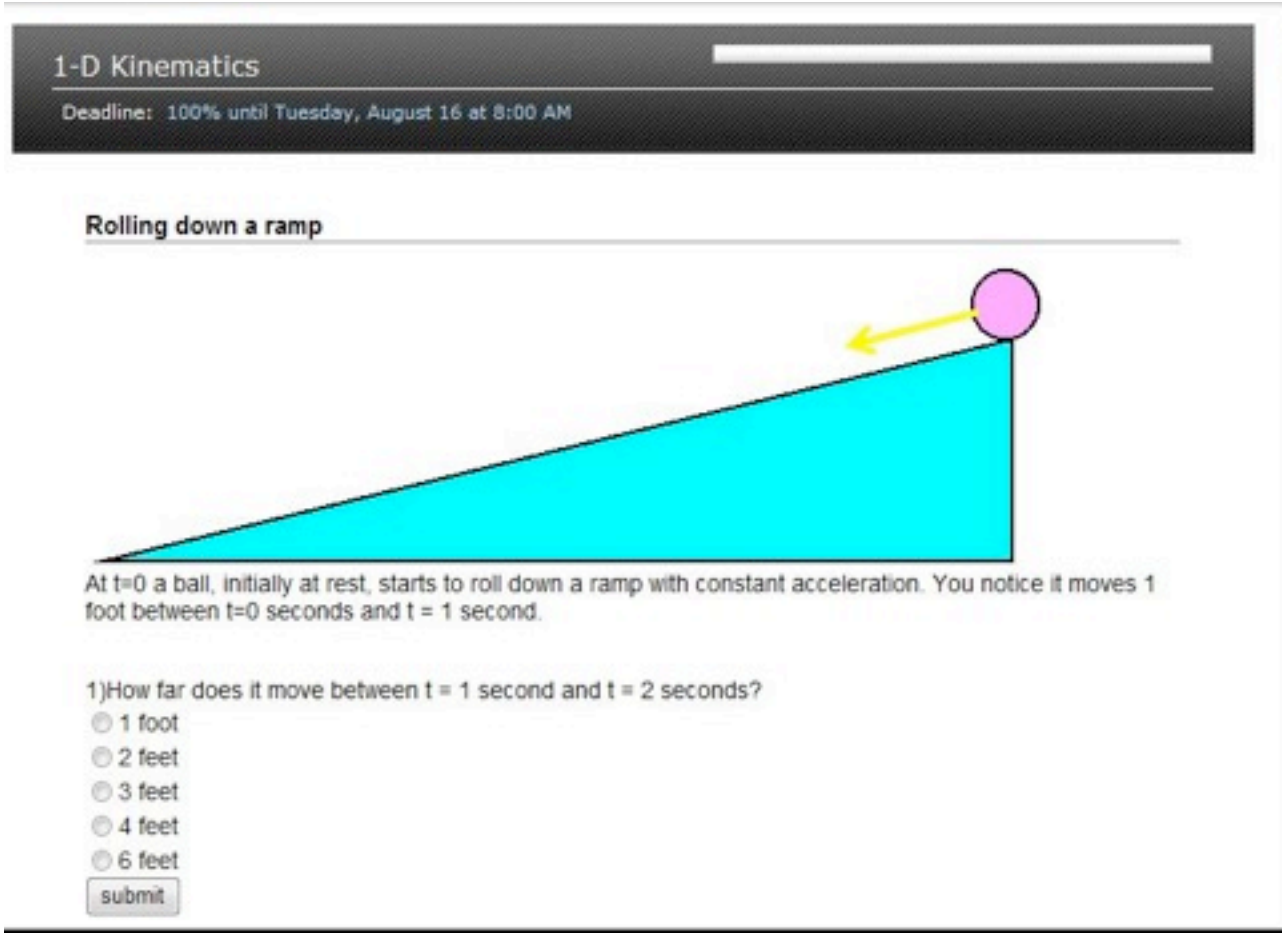
How we'll use smartPhysics

You will VIEW PreLectures before class.



How we'll use smartPhysics

Next, you'll complete a CheckPoint quiz before lecture to CHECK your understanding of the PreLecture.



How we'll use smartPhysics

COME to Lecture!

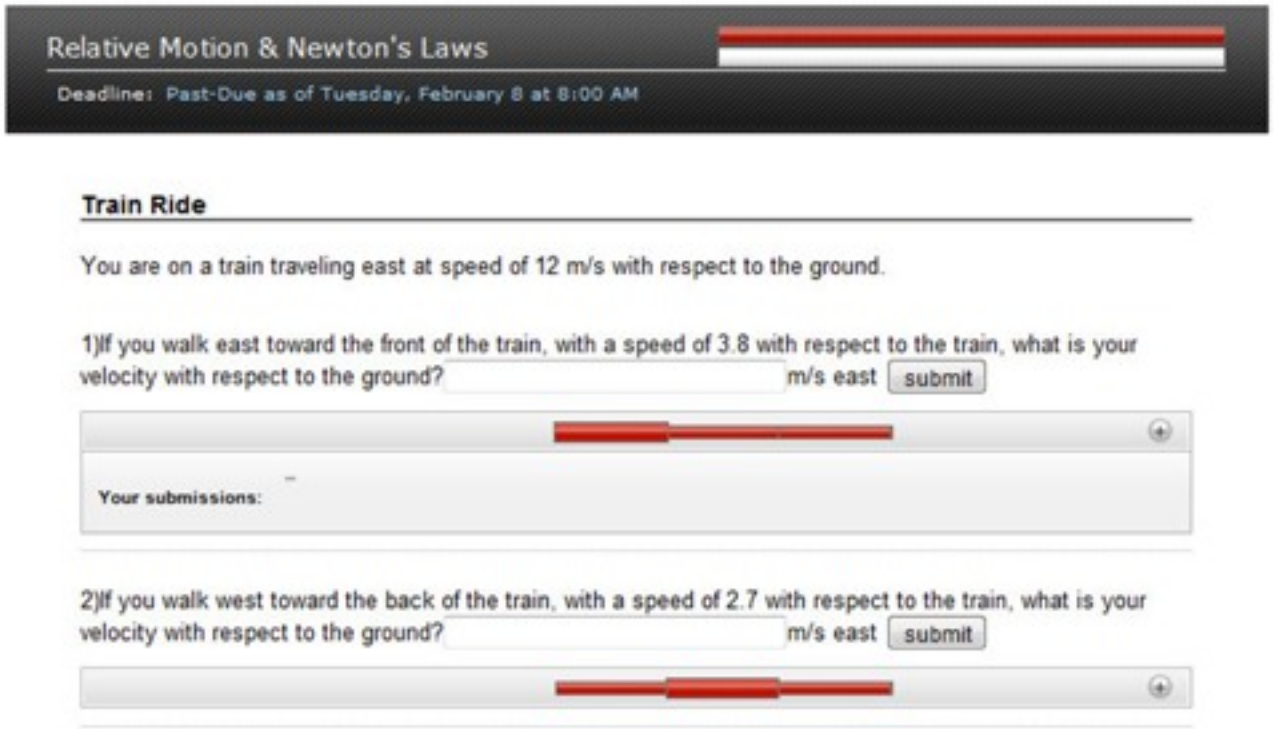
The lecture will be more interactive because of the work you've done before class.

Your comments:

- I would appreciate some discussion on the ties between calculus and the three laws
- I felt very confident during most of the time while doing the prelecture and preflight, you can go over whatever you want as far as I'm concerned.
- I don't quite understand how the change of momentum relates to net force and acceleration.
- I knew all of these surprisingly well. Or at least I think I do.
- Why (in physics terms) wouldn't an object like a wall move according to Newton's Third Law if it does not have balanced forces on it (net force =/=0, so shouldn't it accelerate per Newton's First Law?
- How does net force differ from other forces? Also, in relation to centripetal motion, in which directions are acceleration, momentum, and velocity.
- why the acceleration of the car is towards the center of the circle, yet the car's velocity is pointing directly forward from the car at any point in time.

How we'll use smartPhysics

Next, you must complete assigned homework problems.



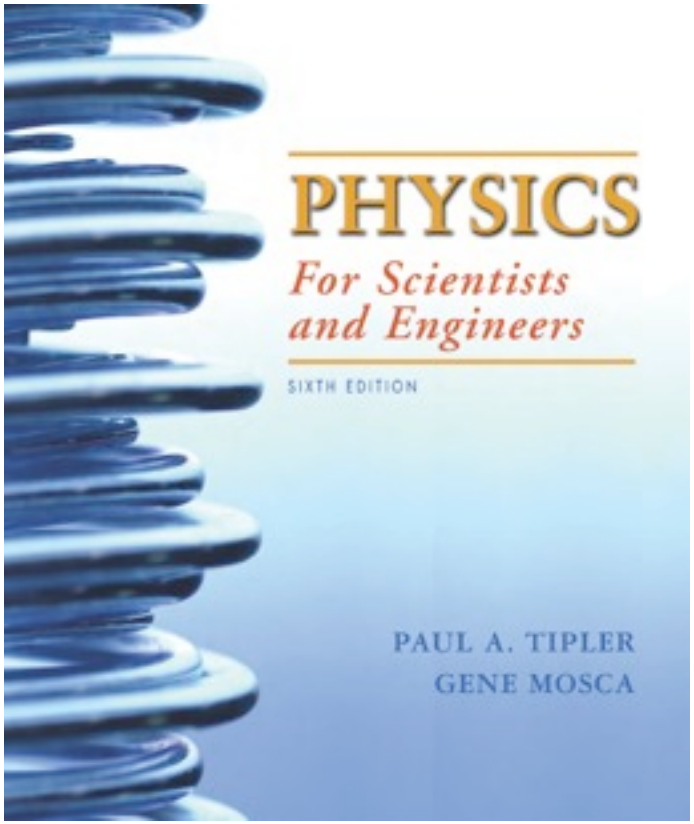
A single assignment may contain multiple problems.

How we'll use the textbook

READ the Textbook as needed for review or better understanding. It presents the same material in a different way.

STUDY the Textbook problems, with solutions

WORK the Textbook end-of-chapter problems, odd ones have answers.



Not required. You may live without it, buy a used one, borrow one from a library, use wikipedia or any other resources

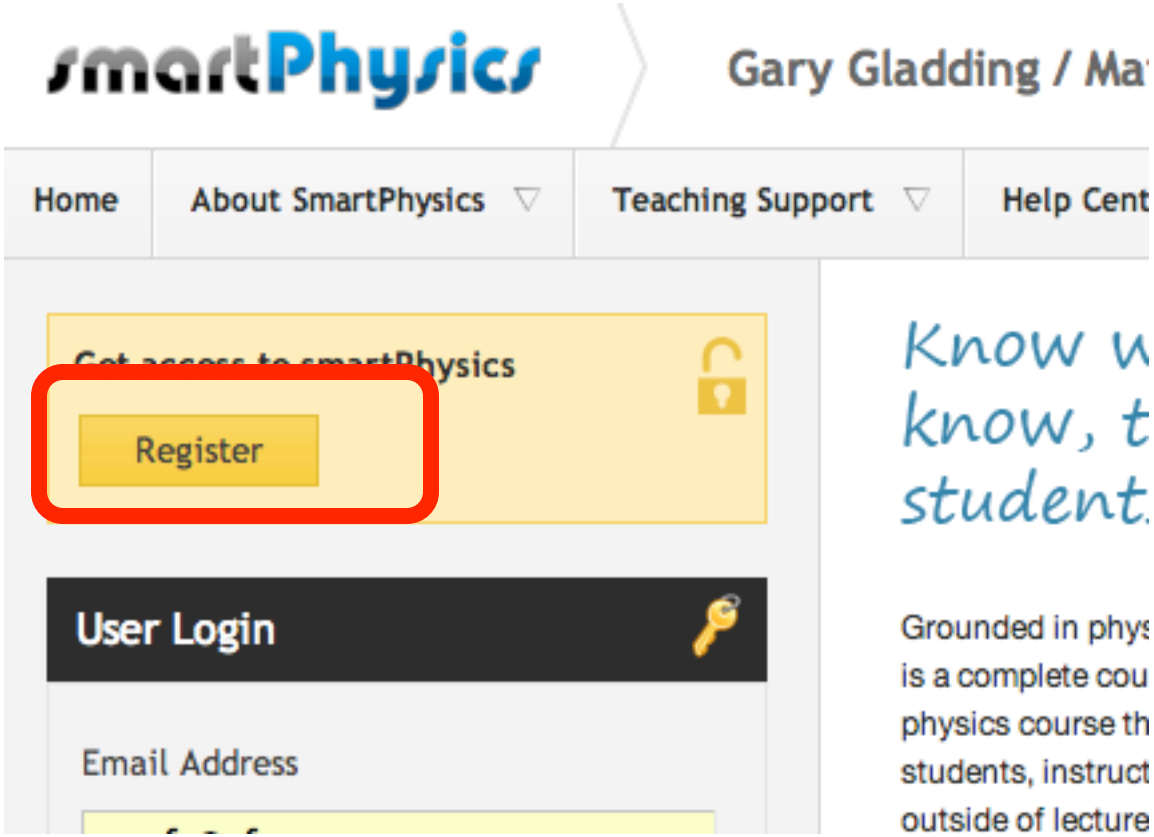
So how do you get started?

To access to smartPhysics:

- **Create a smartPhysics account**
- **Join my course so you can see my assignments and get credit for your work.**
- **Purchase access (by activating a printed activation code purchased through the bookstore or purchased online)**

Create a smartPhysics account

1. **Go to smartphysics.com**



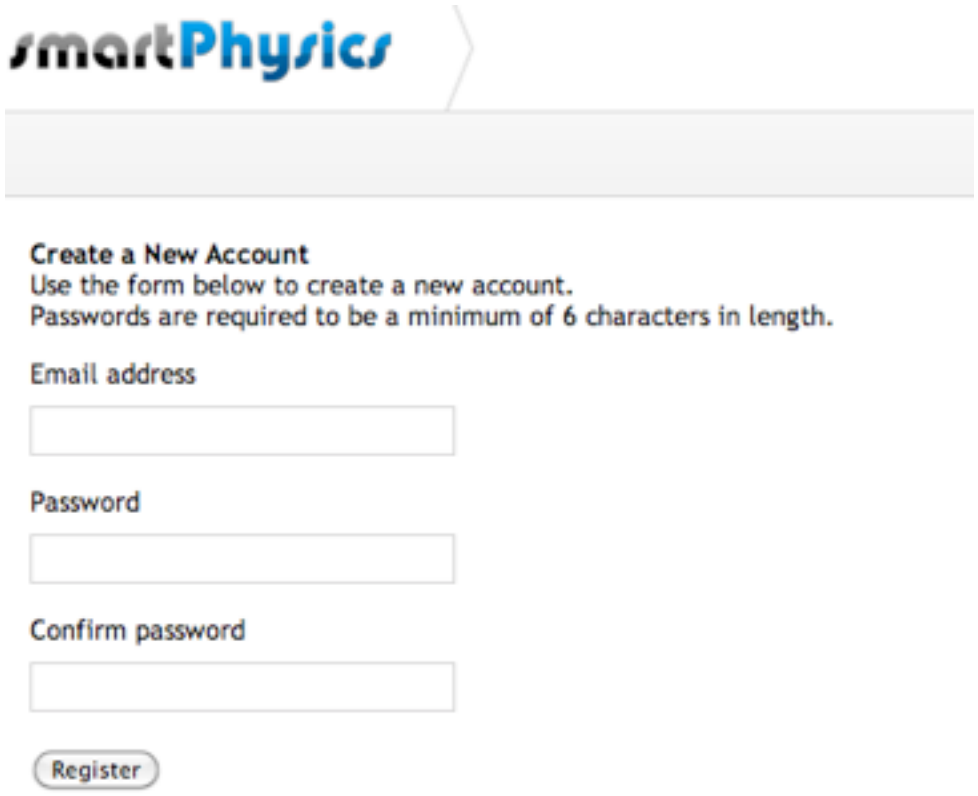
2. **Locate and select “Register”**

Create a smartPhysics account

3. Begin the process of registering for the site. Enter your email address (your institutional email address) and choose a password.

4. Read and agree to the site terms and conditions.

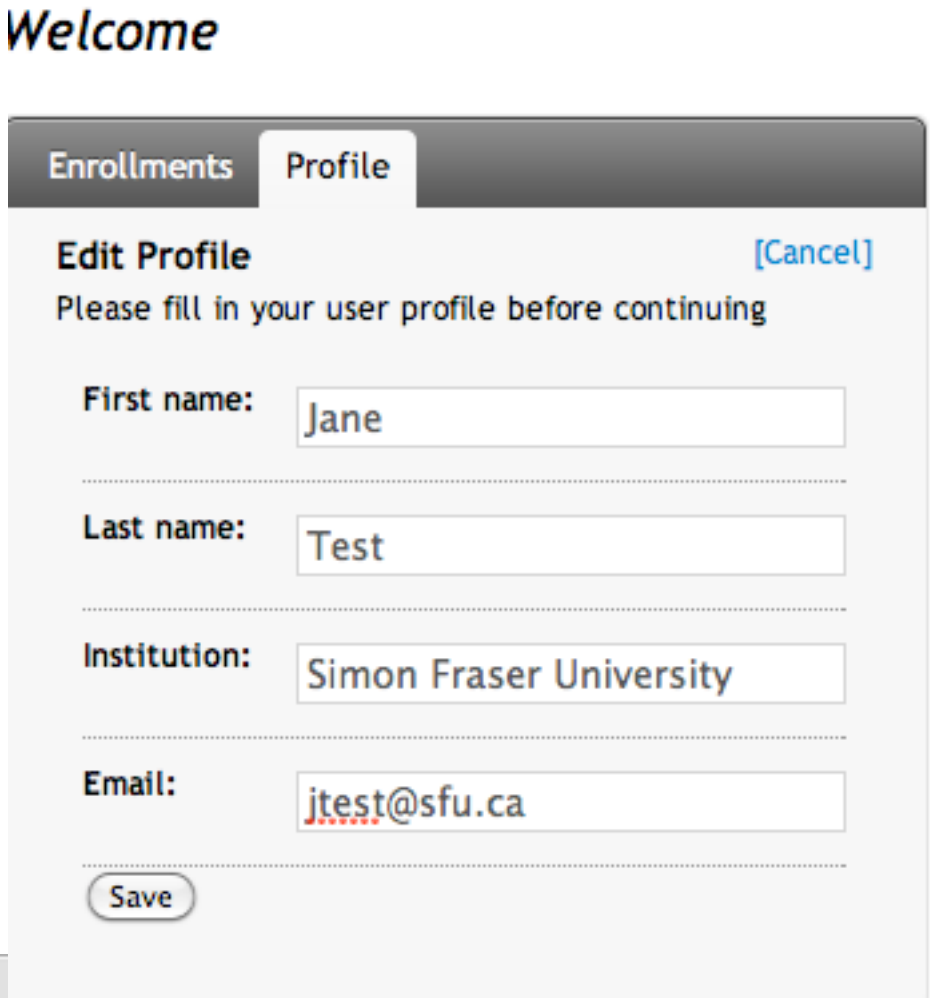
5. Click "Register"



Create a smartPhysics account

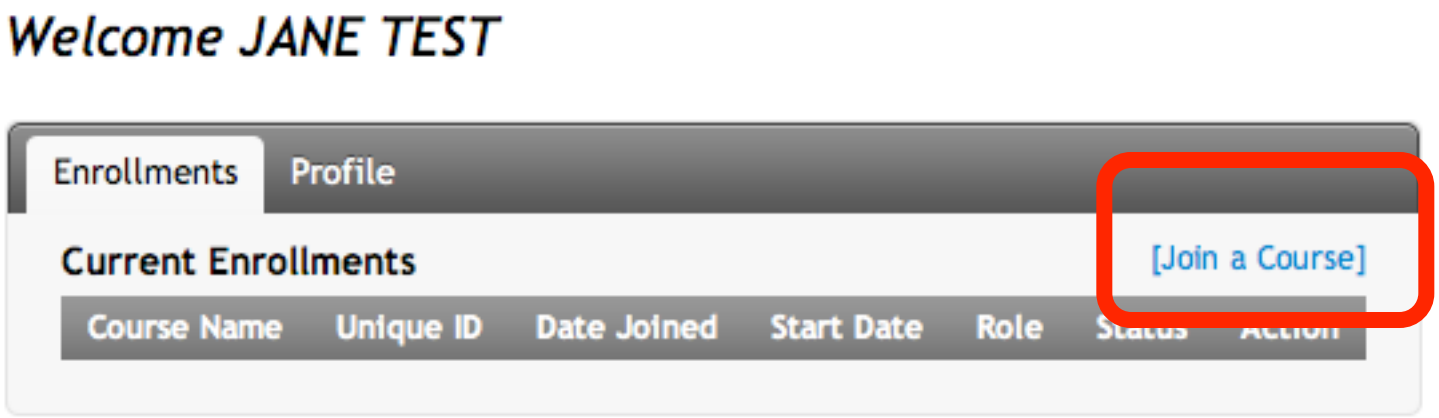
6. Set up your profile (first name, last name, institution)

7. Click "Save"



Enroll in this course

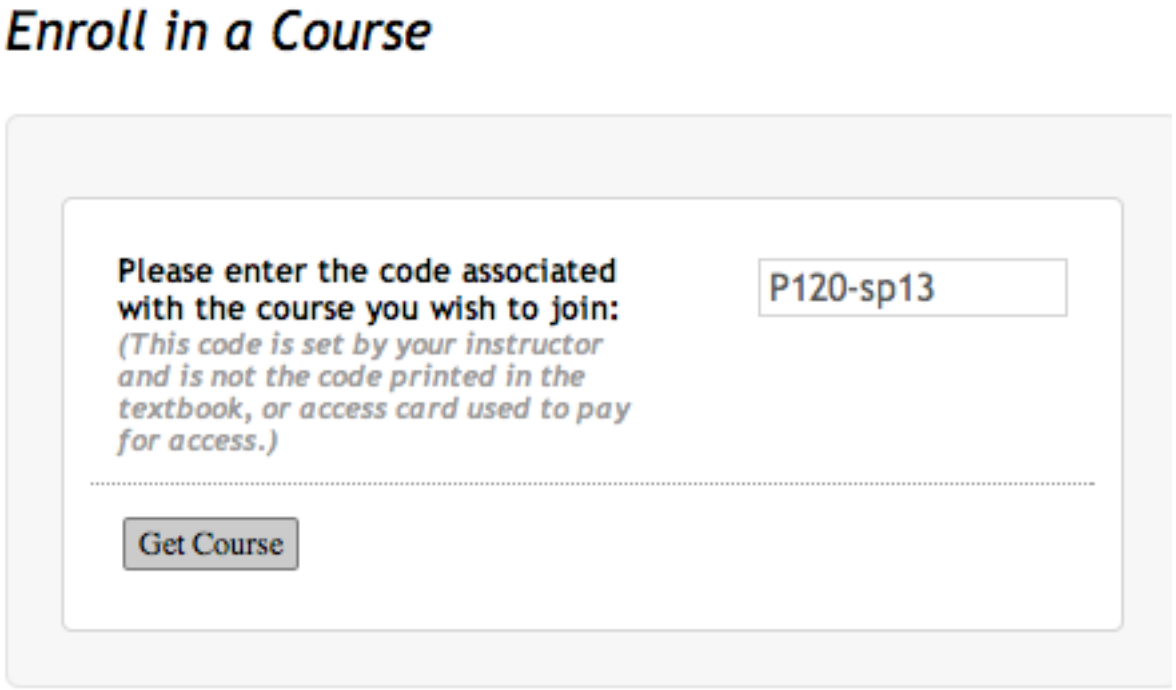
8. Choose the “Enrollments” tab and enter the access key of this course.



Course Access Key

The COURSE ACCESS KEY for this course is:

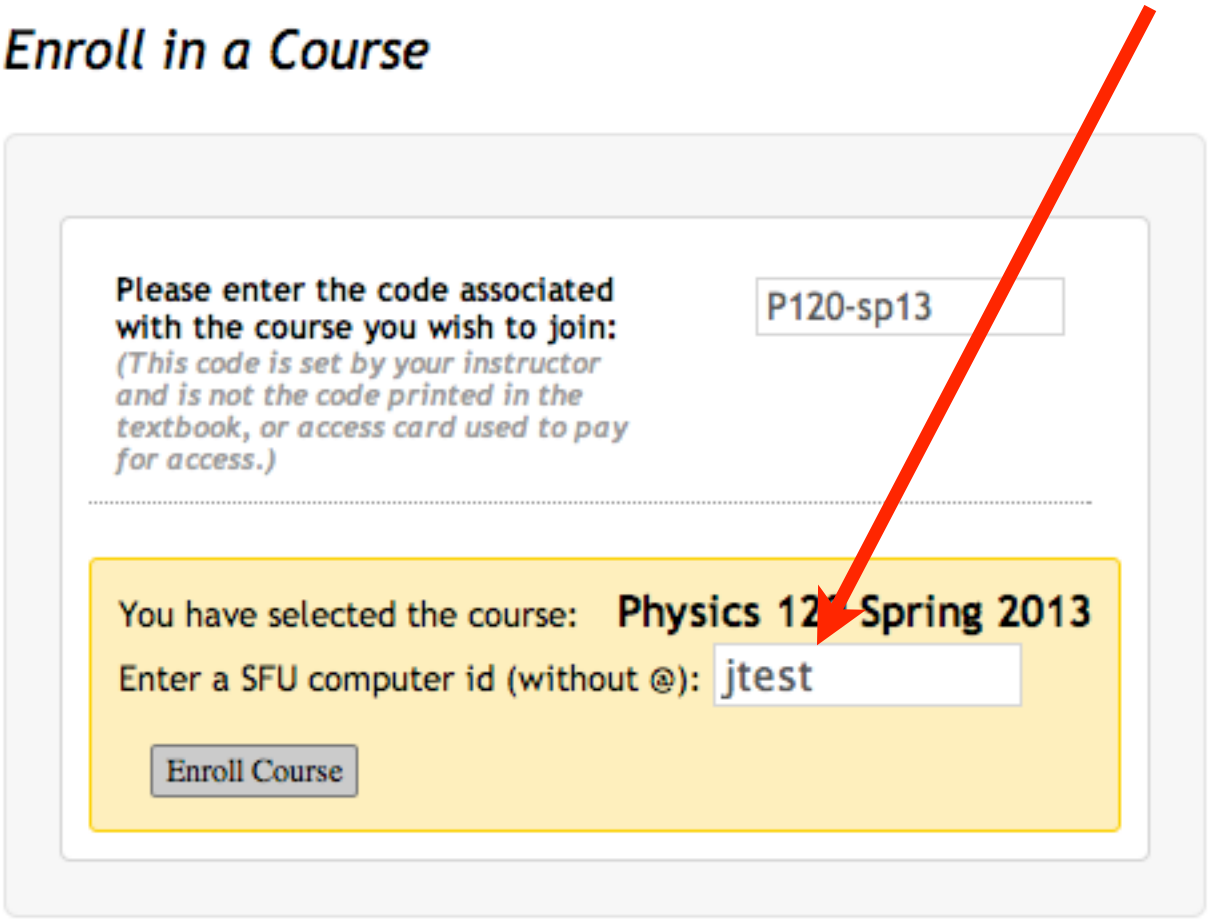
P120-sp13



Enroll in this course

9. Enter your sfu computer id, for example: jtest

<u>Do not</u> enter your student number, hotmail address, etc

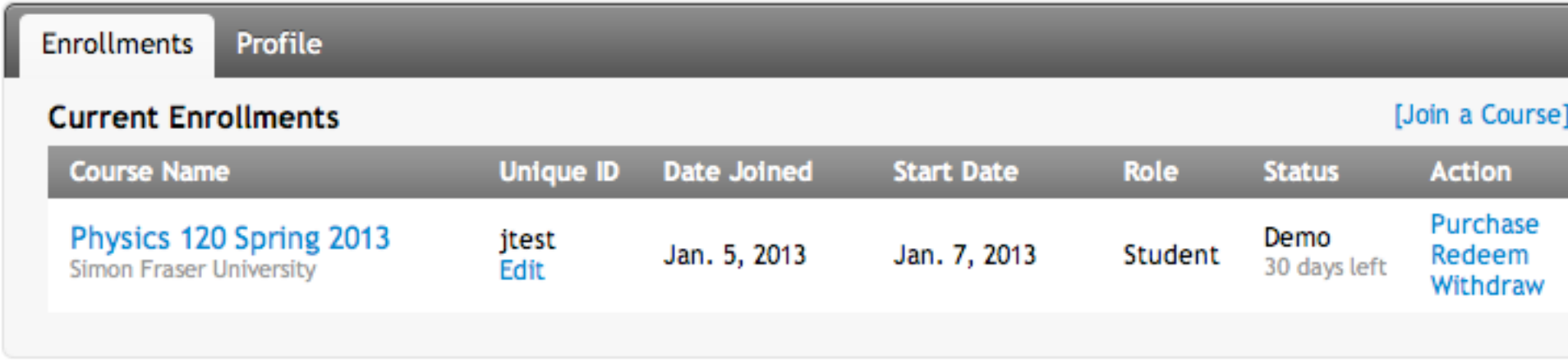


Access smartPhysics

Congratulations! You are now enrolled in your course!

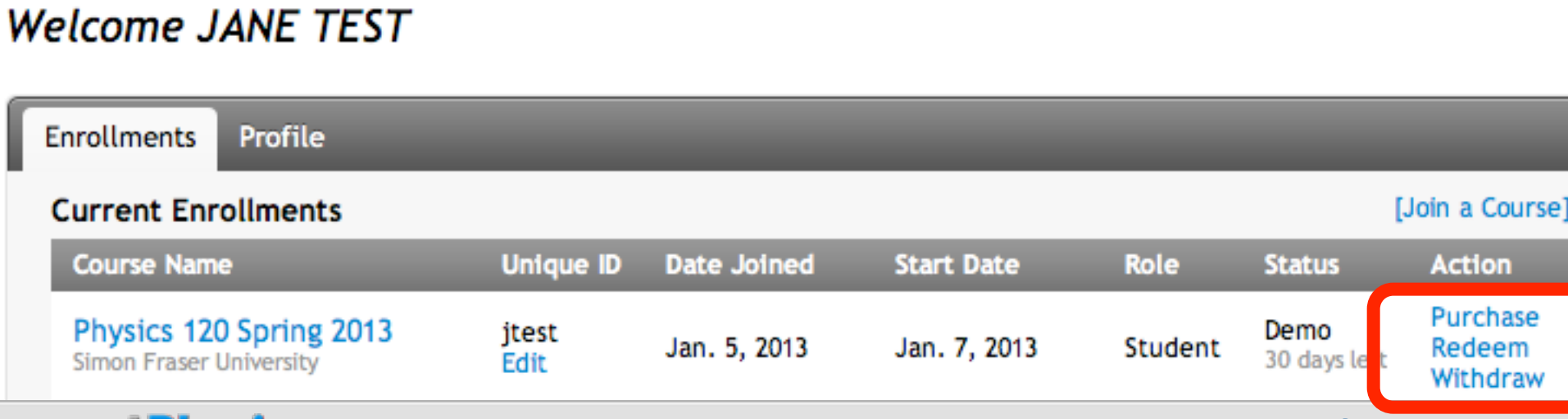
You will be given 30 days in which to access smartPhysics before having to purchase access or redeem an access code. This will provide you with a nice grace period should you drop the course.

Welcome JANE TEST

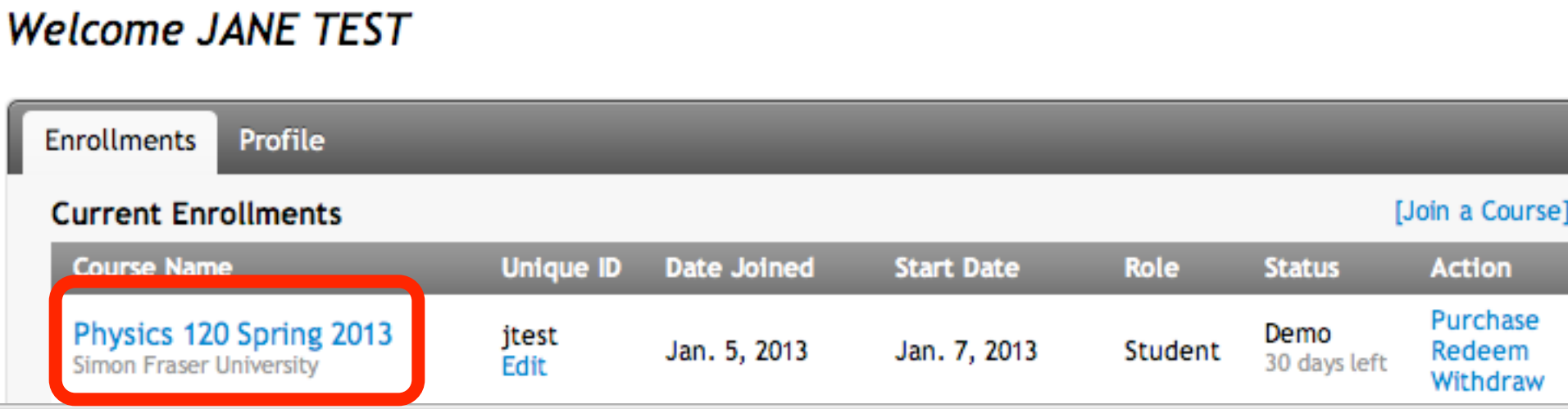


Access smartPhysics

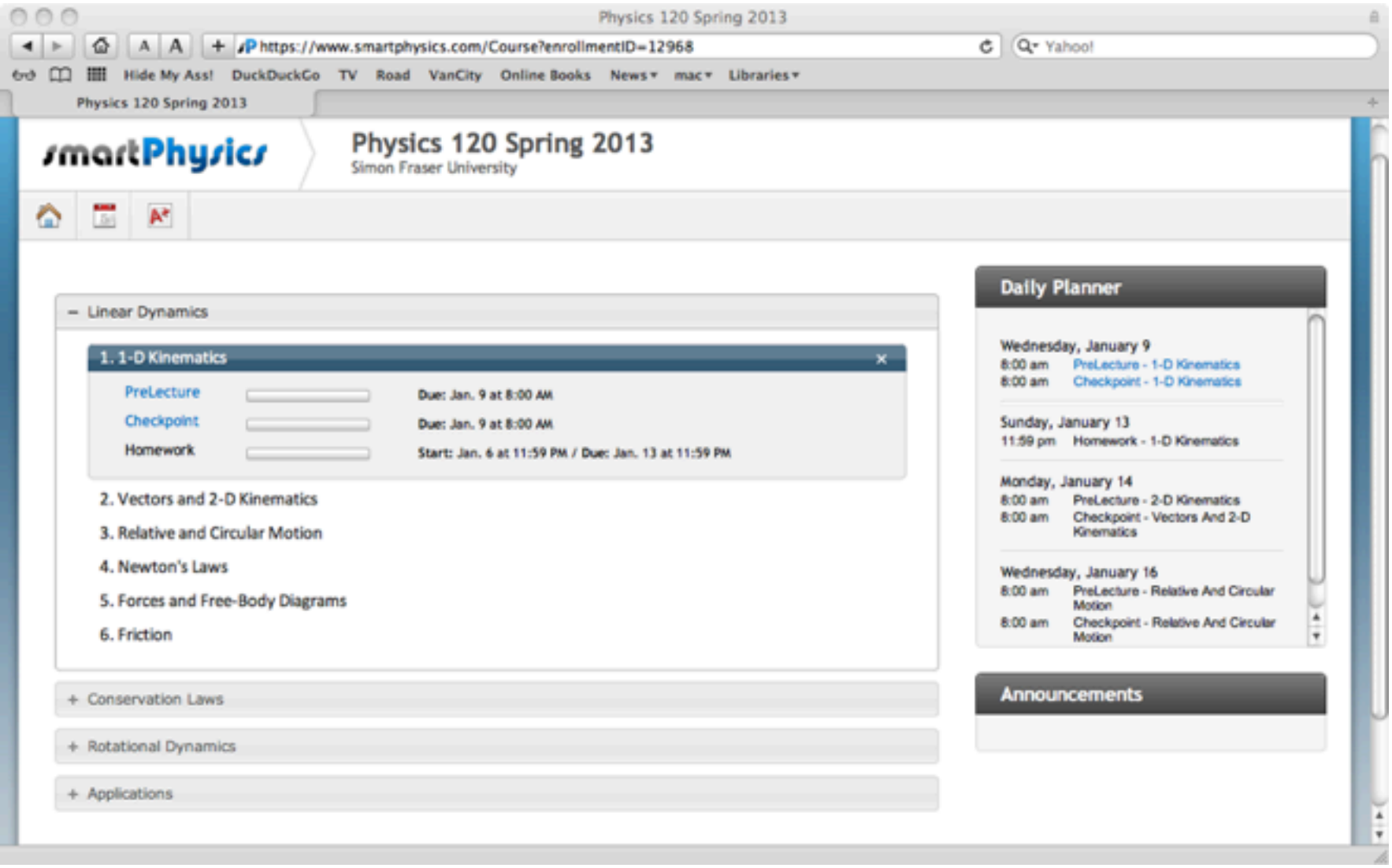
After the 30 days (or before, if you'd like), you must either buy access online with a credit card OR redeem an activation code (housed in a printed booklet purchased at the campus bookstore)



enter the course



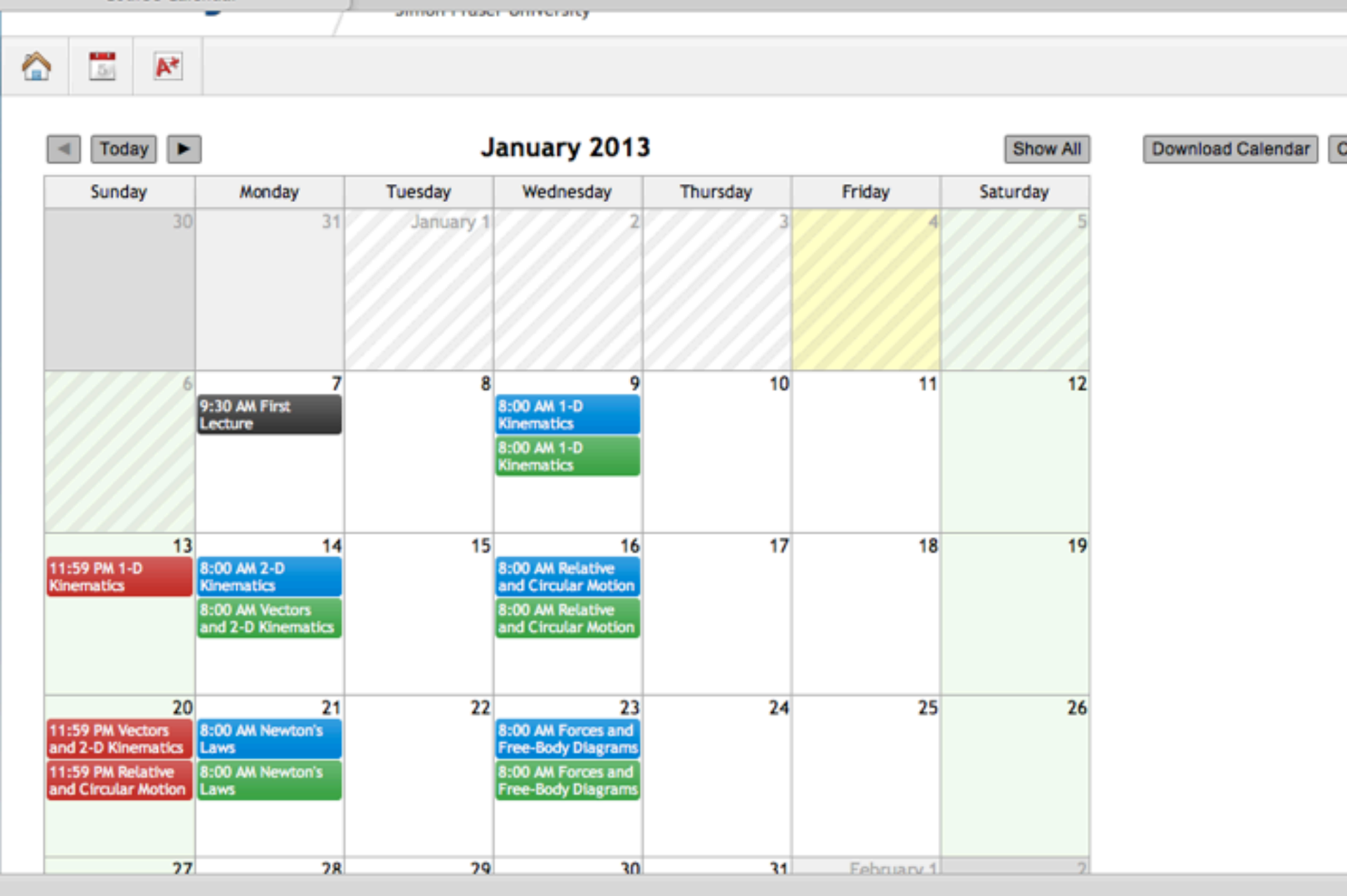
you're in


Physics 120 Spring 2013
https://www.smartphysics.com/Course?enrollmentID=12968
Yahoo!
Hide My Ass!
DuckDuckGo
TV
Road
VanCity
Online Books
News
mac
Libraries
Physics 120 Spring 2013
smartPhysics
Physics 120 Spring 2013
Simon Fraser University
Linear Dynamics
1. 1-D Kinematics
PreLecture
Due: Jan. 9 at 8:00 AM
Checkpoint
Due: Jan. 9 at 8:00 AM
Homework
Start: Jan. 6 at 11:59 PM / Due: Jan. 13 at 11:59 PM
2. Vectors and 2-D Kinematics
3. Relative and Circular Motion
4. Newton's Laws
5. Forces and Free-Body Diagrams
6. Friction
Conservation Laws
Rotational Dynamics
Applications
Daily Planner
Wednesday, January 9
8:00 am PreLecture - 1-D Kinematics
8:00 am Checkpoint - 1-D Kinematics
Sunday, January 13
11:59 pm Homework - 1-D Kinematics
Monday, January 14
8:00 am PreLecture - 2-D Kinematics
8:00 am Checkpoint - Vectors And 2-D Kinematics
Wednesday, January 16
8:00 am PreLecture - Relative And Circular Motion
8:00 am Checkpoint - Relative And Circular Motion
Announcements

Need live help?

The smartPhysics technical support team is ready and able to help you and is available 7 days a week by phone and email.

techsupport@bfwpub.com


Today
January 2013
Show All
Download Calendar
Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
30
31
January 1
2
3
4
5
6
7
9:30 AM First Lecture
8
9
8:00 AM 1-D Kinematics
8:00 AM 1-D Kinematics
10
11
12
13
11:59 PM 1-D Kinematics
14
8:00 AM 2-D Kinematics
8:00 AM Vectors and 2-D Kinematics
15
16
8:00 AM Relative and Circular Motion
8:00 AM Relative and Circular Motion
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11:59 PM Relative and Circular Motion
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8:00 AM Newton's Laws
8:00 AM Newton's Laws
22
23
8:00 AM Forces and Free-Body Diagrams
8:00 AM Forces and Free-Body Diagrams
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31
February 1
2

advice

You are encouraged to do the homework **well before** the due date and time.

Emails received by the instructors or TAs received just before the deadline will be ignored.

Gradebook of Jane Test

Unit ○ Score Bar ◉ Number ○ Both	PreLectures	CheckPoints	Homework
1) 1-D Kinematics	0%	0%	0%
2) Vectors and 2-D Kinematics	0%	0%	0%
3) Relative and Circular Motion	0%	0%	0%
4) Newton's Laws	0%	0%	0%
5) Forces and Free-Body Diagrams	0%	0%	0%
6) Friction	0%	0%	0%
7) Work and Energy	0%	0%	0%
8) Conservative Forces and Potential Energy	0%	0%	0%
9) Work and Potential Energy: Part II	0%	0%	0%
10) Center of Mass	0%	0%	0%
11) Conservation of Momentum	0%	0%	0%
12) Elastic Collisions	0%	0%	0%
13) Collisions, Impulse, & Reference Frames	0%	0%	0%
14) Rotational Kinematics & Moment of Inertia	0%	0%	0%
15) Parallel-Axis Theorem and Torque	0%	0%	0%
16) Rotational Dynamics	0%	0%	0%
17) Rotational Statics	0%	0%	0%
18) Rotational Statics: Part II	0%	0%	0%
19) Angular Momentum	0%	0%	0%
20) Angular Momentum Vector and Precession	0%	0%	0%

Tutorials

Tuesday or Thursday

There are 9 sections: D101–D106, D109-D111

Start **tomorrow**

Tutorial Activities (problems etc.) count 5% of your mark.

TAs are Shima Aghara, Mohammad Dehghani Ashkezari and Jamie Horton

Lectures

50 min of uninterrupted excitement

Mon, Wed, Fri.

- Mon & Wed introduce new material
- Fri for demonstrations, problems and questions

Bring an iClicker: either iClicker1 or iClicker2

An extra set of batteries is a good idea.

Register yours online with its serial number and your sfu id: iclicker.com

- registration is retroactive – you'll get the marks you earned from before you registered.

Course Schedule on WebCT

Phys120-Spring 2013

Date	Unit	Topic	Tipler&Mosca
Mon, Jan 7, 13	LECTURE	First Lecture	Ch 1 (all)
Wed, Jan 9, 13	Unit 1 - Lecture	1-D Kinematics	Ch 2.1–2.4
Fri, Jan 11, 13	Problems,Demos,Discussion		
Mon, Jan 14, 13	Unit 2 - Lecture	2-D Kinematics	3.1,3.3
Wed, Jan 16, 13	Unit 3 - Lecture	Relative and Circular Motion	3.4
Fri, Jan 18, 13	Problems,Demos,Discussion		
Mon, Jan 21, 13	Unit 4 - Lecture	Newton's Laws	4.1–4.4,4.7
Wed, Jan 23, 13	Unit 5 - Lecture	Forces and Free-Body Diagrams	4.5
Fri, Jan 25, 13	Problems,Demos,Discussion		4.6,4.8
Mon, Jan 28, 13	Unit 6 - Lecture	Friction	5.1
Wed, Jan 30, 13	Unit 7 - Lecture	Work and Kinetic Energy	6.1–6.4
Fri, Feb 1, 13	Problems,Demos,Discussion		5.3
Mon, Feb 4, 13	Unit 8 - Lecture	Conservative Forces and Potential Energy	7.1
Wed, Feb 6, 13	Unit 9 - Lecture	Work and Potential Energy	7.2,7.3
Fri, Feb 8, 13	EXAM	Midterm 1	
Mon, Feb 11, 13	Family Day		
Wed, Feb 13, 13	Reading Break		
Fri, Feb 15, 13			
Mon, Feb 18, 13	Unit 10 - Lecture	Center of Mass	5.5
Wed, Feb 20, 13	Unit 11 - Lecture	Conservation of Momentum	8.1
Fri, Feb 22, 13	Problems,Demos,Discussion		
Mon, Feb 25, 13	Unit 12 - Lecture	Elastic Collisions	8.2–8.3
Wed, Feb 27, 13	Unit 13 - Lecture	Collisions, Impulse, and Ref. Frames	8.4
Fri, Mar 1, 13	Problems,Demos,Discussion		
Mon, Mar 4, 13	Unit 14 - Lecture	Kinematics and Moment of Inertia	9.1–9.3
Wed, Mar 6, 13	Unit 15 - Lecture	Parallel Axis Theorem and Torque	
Fri, Mar 8, 13	EXAM	Midterm 2	
Mon, Mar 11, 13	Unit 16 - Lecture	Rotational Dynamics	9.4–9.6
Wed, Mar 13, 13	Unit 17 - Lecture	Rotational Statics	12.1–12.3

Midterms

2 of them

50 min long, in this room

combo of multiple choice (10) & problems (2)

cumulative (ie, stuff we did before midterm 1 might be needed for midterm 2—don't wipe your brain after each midterm!)

Grading

smartPhysics: 10%

- Prelectures, checkpoints, homework

iClicker Questions: 5%

- 1 pt if you answer a question, another 1 pt if you get it right

tutorials: 5%

- problems worked in the tutorial in groups

Midterm I Exam: 15%, Midterm II Exam: 15%

Final Exam: 50%