http://umanitoba.ca/faculties/science/870.htm

Science News Updates - H1N1 Flu Virus

updated 9 September 2009

Attention students taking Faculty of Science courses:

Should major disruptions to University activities occur as a result of a pandemic, the course content, marks breakdown and other provisions in course outlines may be adjusted as the circumstances warrant.

Friday, September 11, 2009

PHYS 1020 Introductory Physics I

- Along with PHYS 1030, a broad survey of physics without calculus. Preparation for MCAT a "popular" aim.
- Gain a feel for physics and its view of the universe.
- Learn to describe physical problems in mathematical terms translating a problem into mathematical terms a crucial skill.
- Ability to use basic algebra, geometry, trigonometry is assumed.

You should have:

• Textbook: Cutnell + Johnson, 8th edition, includes a WileyPLUS licence.

7th edition also OK, BUT, you will have to buy a separate licence for WileyPLUS!

- PHYS 1020 lab manual for 2009
- Scientific calculator (but not in a phone!)
- iClicker, from bookstore used in all sections except A04.
- Optional: Student Solution Manual gives detailed solutions to odd-numbered questions

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What you're expected to know

- Basic algebra reorganize an equation to isolate a variable
- Solution of simultaneous equations
- Solution of quadratic equation
- Basic geometry and trigonometry
- Exponentials and logarithms...

See appendices in Cutnell & Johnson for help





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Evaluation in PHYS 1020

Lab reports	20%	5 lab reports
Tutorial tests	10%	4 tests, see handout for dates Formula sheet not allowed
Term test	20%	Thursday, 22 October 19:00 - 21:00 Formula sheet provided
WileyPLUS	5%	Approximately 5 homework assignments
Final exam	45%	Date to be announced Formula sheet provided

Tests and final exam are all multiple choice

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Assignment of Grades

No fixed grade boundaries, but some guarantees.

The following shows the minimum grade for a given mark in the course.

90%	A+
80%	Α
75%	B+
70%	В
60%	C+
50%	С
40%	D

So, for example, if your overall mark is 50%, you are assured of at least a C.

The final grade boundaries will be adjusted according to the distribution of marks.

Administration of course

- Course coordinator: Dr. J. Birchall, keeper of the marks, room 205, Allen building, 474-6205
- Lab coordinator: Dr. H. Kunkel, missed lab, test, questions about lab marks (ask TA first), room 402G, Allen building, 474-9214
- WileyPLUS assignments: Dr. M. Gericke, 213 Allen
- Tutorial tests: Dr. R. Cameron, 512 Allen
- Miscellaneous questions, problems: Physics main office, room 301, Allen building, 474-9817



Web site: www.physics.umanitoba.ca/undergraduate/PHYS1020

Instructors



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Lecture Notes for PHYS 1020, Fall 2009

Intro + Chapter 1	Sept. 11	Lecture 1 preview
	14	
	16	
	18	



Web site: www.physics.umanitoba.ca/undergraduate/PHYS1020

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Schedule of Lectures, Labs and Tutorials

Week		Date	Chapter	Торіс	Laboratory/Tutorial/Test
1	Th-F	Sep 10, 11	1	Introduction	NO LABS OR TUTORIALS
2	Μ	14	1	Introduction	
	W	16			Errors Lecture
	F	18	2	Kinematics in one dimension	
3	М	21			
	W	23			Tutorial and TEST #1
	F	25	3	Kinematics in two dimensions	
4	Μ	28			Experiment #1: Measurement
	W	30			of Length and Mass
	F	Oct. 2	4	Forces and Newton's Laws	
5	М	5			
	W	7	5	Uniform Circular Motion	Tutorial and TEST #2
	F	9	5	Children Cheular Wollon	
6	M	12		NO LECTURE (Thanksgiving)	Experiment #2. Measurement
	w	14			of α by Free Fall
	F	16	-	Work and Energy	
7	M	19	6		
	W	21			NO LAB OR TUTORIAL
	Th	22		Midterm Test (7:00-9:00 pm)	Week of Mid-Term Test
	F	23			
8	Μ	26	7	Impulse and Momentum	Evenniment #2. Essession
	W	28		impuise and Momentum	Experiment #3: Forces in
	F	30	9 (8 1 2)		Equilibrium
9	M	Nov. 2	ð (Sec 1-3)	Rotational Kinematics	
	w	4	0 (8 1.2 ()		Tutorial and Test #3
Friday, September 11, 2009					

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	F	30	9 (5 - 1 2)	Detection 1771 at	Equinoriam
9	M	Nov. 2	8 (Sec 1-3)	Rotational Kinematics	
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		16		Work and Energy	
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	W	28			Fauilibrium
	F	30	8 (Sec 1-3)	Rotational Kinematics	
9	Μ	Nov. 2			
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Friday, S	September 11, 2009				15

Schedule of Lectures, Labs and Tutorials

Policies on term test, final exam

- Must write the term test.
- If medical or compassionate leave is granted and test is not written, final exam counts for 65% of final grade.
- There is **no** deferred term test.
- **Must** write final exam to receive any credit for the course, otherwise you get "F No Paper".
- Bring calculator, student id card and **pencil** for tests, midterm and final exam.



Web site: www.physics.umanitoba.ca/undergraduate/PHYS1020

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Tutorials, tests

These take place in the lab:

Tutorial: your TA will go through a number of problems, answer questions.

Tutorial is followed by a multiple-choice test over the next hour.

Formula sheet is **not** allowed on the tests.

You must do the tests, even if you have a lab exemption – keep your lab slot free!

Tutorial Review Problems

Tutorial 1

	Cutnell edition 8 Ch 1: 18 Ch 1: 53 Ch 2: 10 Ch 2: 35 Ch 2: 53	Cutnell edition 7 Ch 1: 15 Ch 1: 47 Ch 2: 8 Ch 2: 30 Ch 2: 45	Problems that are gone through in the tutorial session immediately preceding each tutorial test
	Tutorial 2		
	Cutnell edition 8	Cutnell edition 7	
	Ch 4: 18 Ch 4: 106 Ch 4: 99 Ch 4: 65 Ch 4: 102	Ch 4: 16 Ch 4: 24 Ch 4: 39 Ch 4: 59 Ch 4: 94	
	Tutorial 3		
	Cutnell edition 8	Cutnell edition 7	
Friday, September 1	Ch 6: 22 Ch 6: 35 Ch 6: 60 1, 2009	Ch 6: 20 Ch 6: 30 Ch 6: 52	

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Policies on labs

- Lab reports are normally due 24 hours after the lab itself
 sign and date data tables. TA must sign too.
- Must do all 5 labs, unless you have a lab exemption. If a lab is missed, see Dr. Kunkel to see if a make-up lab can be arranged.

Dr. Kunkei 4026 Allen

• If more than one lab is missed without good reason, <u>you get no</u> <u>marks at all for labs!</u>



- Lab exemption must have taken the course in last 2 years and have got at least 80% on lab. Applies also if labs completed but course dropped. See Dr. Birchall.
- See Dr. Kunkel if a lab or test is missed (402G Allen, 474-9214).



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Contacts

WileyPLUS	Dr. M. Gericke
Labs	Dr. H. Kunkel
Tutorials	Dr. R. Cameron
Marks	Dr. J. Birchall
Website	Dr. J. Birchall
Everything else	<u>Your instructor</u>

If you are not able to do a lab or tutorial test in your scheduled slot, see Dr. Kunkel as soon as possible to see if it is possible to do the lab or test in another slot the same week.

WileyPLUS

Web-based homework assignments. Instant feedback, hints point you to the solution.

About 5 assignments for credit for the whole course.

Worth 5% of final grade.

Can be done over a number of days at campus computers or at home - due date will be posted.

Also a number of practice problems to supplement or replace end of chapter problems in Cutnell + Johnson.



Web site: www.physics.umanitoba.ca/undergraduate/PHYS1020



Welcome to WileyPLUS



WileyPLUS is an online teaching and learning solution that will help you reach your full potential in this course and beyond. You can access...

- + The complete online textbook! +
- + Extra study aids!
- + Instant Feedback on your homework!
- + Track your own progress!
- + Online homework!
- + Much, much, more...

Registration Code

You will need a registration code to access *WileyPLUS*. It's your choice to buy it with or without the printed text:

- Buy the new, printed text in the bookstore and a *WileyPLUS* access code will be included.
- If you prefer to only use the online version of your text in WileyPLUS go to: <u>www.wileyplus.com/buy</u> and save 60% off the price of the print text!

Getting Started

Once you purchase your *WileyPLUS* registration code, you will need to register for *WileyPLUS*:

1. COPY AND PASTE the specific Class Section URL listed below into your browser.

Class Section Name	Class Section URL
PHYS 1020 fall 2009	http://edugen.wiley.com/edugen/class/cls123884/

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PHYS 1020 fall 2009	http://edugen.wiley.com/edugen/class/cls123884/	

- 2. Check that the section matches your schedule before you register!
- 3. Click the REGISTER button to start.
- 4. Need help registering? http://www.wiley.com/college/twomin/stu/register.html

WileyPLUS Help

LOGIN: LIVE CHAT! Technical Support: Additional Resources: www.wileyplus.com www.wileyplus.com/support www.wileyplus.com/studentfdoc

You must register using your U of M student ID to get any credit at all for WileyPLUS!!!!



The first WileyPLUS assignment Non-credit, available all term

A walk through features of WileyPLUS

How to enter mathematical equations

How to find help

A few dumb questions...

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Typical marking scheme for WileyPLUS questions

Assignment Type

Questions/Exercises

Student Access Settings

Current date: September 10, 2009, 11:28 AM

Not Assigned

Question Policies

Please review the information below to see the question policies set by your instructor. The 'Attempts' area indicates how many attempts you will be given for each question, and if you will lose points for multiple attempts. The 'Question Assistance' area indicates when the various types of question assistance will be made available to you, and if any points will be deducted for utilizing those.

Attempts per Question: Show Work:	up to 3 (This limit is set by your instructor.) Disabled		
	Policies	Point Potential	
Attempts Up to 3 Attempts per Question	after second attempt	80% point potential	
Question Assistance Show Hint: Show Links: Show GO Tutorial: Show Answer:	after first attempt after second attempt after third attempt after third attempt	90% point potential 80% point potential no point potential no point potential	
Note: The questions in this assignment are set to change values on repeat attempts.			

The iClicker

Used in all sections, apart from A04.

On sale at bookstore.

Can be sold back to bookstore for most of purchase price (all but \$6?).



Will incorporate some conceptual clicker questions into lectures:

- instant and anonymous check of understanding
- practice for conceptual questions on midterm and final
- feedback about what needs to be clarified

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More Help

• Publisher's web site for worked problems, interactive problems, simulations...

• Course web site for information about the course:

www.physics.umanitoba.ca/undergraduate/phys1020

• Other: "Crisis Centre" - room 105, Allen building

www.wiley.com/college/cutnell

Topics covered in PHYS 1020

Chapters 1 - 14 of Cutnell & Johnson

- Introduction, mathematical concepts
- Motion in one and two dimensions, Newton's laws of motion, work, energy, momentum, conservation laws
- Circular motion, angular momentum
- Simple harmonic motion, pendulum
- Fluids: density, pressure, fluid flow
- Temperature and heat, heat transfer (mainly for experiment)
- Ideal gas law

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Chapter 1: Introduction, Mathematical Concepts

- Review the chapter units (SI only), dimensional analysis, trigonometry
- Scalars and vectors
- A scalar is just a number, maybe with units, eg 50 kg, 10 m
- A vector has a magnitude (scalar) and a direction:

50 km (scalar) to the north (displacement vector) 3 m/s (speed, scalar) to the east (velocity vector)





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Example: You are flying at 50 m/s at 30° north of east. The wind is blowing (Wind at 30 m/s at 20° east of north. What 30 m/s is your resultant velocity? 20° to C y-axis) $A_x = 50 \cos 30^\circ \text{ m/s} = 43.3 \text{ m/s}$ (Plane, 50 m/s R $A_v = 50 \sin 30^\circ \text{ m/s} = 25.0 \text{ m/s}$ (a) 30° to x-axis) 1300 $B_x = 30 \sin 20^\circ \text{ m/s} = 10.3 \text{ m/s}$ $B_{\rm v} = 30 \cos 20^\circ \,{\rm m/s} = 28.2 \,{\rm m/s}$ $C_x = A_x + B_x = 43.3 + 10.3 = 53.6$ m/s $C = \sqrt{C_x^2 + C_y^2} = 75.5 \text{ m/s}$ $C_y = A_y + B_y = 25.0 + 28.2 = 53.2$ m/s

Direction: $\tan \theta = C_y/C_x = 53.2/53.6 \rightarrow \theta = 44.8^{\circ}$ north of east

The story so far...

 Vectors have a magnitude and direction and can be broken down into x and y components



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