## **PHY 115 – Spring 2014**

## Study Guide for the Midterm Exam

- The table below is a guide to the topics and concepts you will need for the PHY 115 Midterm Fxam
- The Midterm will be on Wednesday, February 19.
- Please bring a calculator. You may bring a note sheet.
- Today's (2/12) class material will *not* be included on the midterm.

Mathematics Review       Exponents       Chapter 0: 0.1 through 0.4         Scientific notation and powers of 10       1.1 through 0.4         Solving equations (including quadratic)       1.1 through 0.4         Models, laws and theories       Chapter 1: 1.1, 1.2         Measurements, units and estimations       Units and unit conversions       Chapter 1: 1.3, 1.4, 1.5, 1.6         Vector and estimations       Order-of-magnitude estimations       1.5, 1.6         Vector and scalar quantities       Vector and scalar quantities in Physics       Chapter 1: 1.7         Kinematics: 1-D motion       Constant-speed motion       Chapter 2: 2.1 through 2.3         Average and instantaneous: speed, velocity, acceleration       2.3         Kinematics, 1-D motion: the Kinematic Equations       Uniformly accelerated motion: the Kinematic Equations       Chapter 2: 2.4, 2.5         Kinematic Equations       Using graphs and kinematic equations to solve problems       Chapter 2: 3       3         Free-fall: a particular case of uniformly accelerated motion       Applying the Kinematic equations to free-fall problems       Chapter 2: 3       3	Topic	Relevant Concepts	Chapters/	Related to Assignment #
Review  Scientific notation and powers of 10  Solving equations (including quadratic)  Linear and quadratic relationships  Models, laws and theories  Measurements, units and estimations  Vector and estimations  Vector and scalar quantities  Kinematics: 1-D motion  Free-fall: a particular case of uniformly accelerated motion  Free-fall: a particular case of uniformly accelerated motion  Free-fall: a particular case of uniformly accelerated motion  Solving equations (including quadratic)  Lintrough (1.1, 1.2)  Chapter 1: 1.3, 1.4, 1.5, 1.6  Chapter 1: All 1.7  Chapter 2: 2, 3  2.1 through (2.3)  Schepter 2: 2, 3  Chapter 2: 3  Chapter 3: 4  Chapter 2: 3  Chapter 3: 4  Chapter 3: 4  Chapter 3: 4  Chapter 4: 4  Chapter 5: 3  Chapter 5: 4  Chapter 6: 4  Chapter 6: 4  Chapter 7: 4  Chapter 7: 4  Chapter 8: 4  Chapter 8: 4  Chapter 8: 4  Chapter 8: 4  Chapter 9: 4  Chapter 9: 4  Chapter 9: 4  Chapter 2: 4  Chapter 2: 4  Chapter 2: 4  Chapter 2: 4  Chapter 3: 4  Chapter 3: 4  Chapter 3: 4  Chapter 4: 4  Chapter 5: 4  Chapter 6: 4  Chapter 6: 4  Chapter 7: 4  Chapter 8: 4			Sections	
Scientific notation and powers of 10 Solving equations (including quadratic) Linear and quadratic relationships  Models, laws and theories Measurements, units and estimations Precision, accuracy and significant figures  Vector and Scalar quantities Kinematics: 1-D motion  Verage and instantaneous: speed, velocity, acceleration  Kinematics, 1-D motion: the Kinematic Equations  Wing graphs and kinematic equations to solve problems  Free-fall: a particular case of uniformly accelerated motion  Free-fall: a particular case of uniformly accelerated motion  Solving equations (including quadratic)  Linear and quadratic relationships  Chapter 1: 1.3, 1.4, 1.5, 1.6  Chapter 1: 1.7  All 1.7  Chapter 2: 2, 3 2.1  through 2.3  Chapter 2: 3 2.4, 2.5		Exponents	=	All
Solving equations (including quadratic)   D.4	Review			
Solving equations (including quadratic)   Linear and quadratic relationships		Scientific notation and powers of 10	_	
Models, laws and theories  Measurements, units and estimations  Vector and scalar quantities  Kinematics: 1-D motion  Kinematics, 1-D motion: the Kinematic Equations  Linear and quadratic relationships  Chapter 1: 1.3, 1.4, 1.5, 1.6  Chapter 1: 1.3, 1.4, 1.5, 1.6  Chapter 1: 1.3, 1.4, 1.5, 1.6  Chapter 1: 1.7  All 1.7  Chapter 2: 2, 3  2.1  Position and displacement  Average and instantaneous: speed, velocity, acceleration  Graphing constant-speed and accelerated motion  Kinematic Equations  Chapter 2: 2, 3  2.1  Chapter 2: 2, 3  2.3  Chapter 2: 2, 3  2.4, 2.5  Chapter 2: 3  Chapter 2: 2.4, 2.5  Chapter 2: 3  Chapter 3: 3  Chapter 3: 3  Chapter 4: 3  Chapter 5: 3  Chapter 5: 3  Chapter 6: 3  Chapter 6: 3  Chapter 7: 3  Chapter 7: 3  Chapter 8: 4  C			0.4	
Models, laws and theories  Measurements, units and estimations  Vector and scalar quantities  Kinematics: 1-D motion  Kinematics, 1-D motion: the Kinematic Equations  Venerable Measurements, units and unit conversions  Units and unit conversions  Vector and scalar quantities in Physics  Constant-speed motion  Constant-speed motion  Constant-speed motion  Constant-speed motion  Constant-speed motion  Average and instantaneous: speed, velocity, accelerated motion  Constant-speed and accelerated motion: the Kinematic Equations  Using graphs and kinematic equations to solve problems  Free-fall: a particular case of uniformly accelerated motion  Graphing free-fall motion  Applying the Kinematic equations to free-fall problems  Graphing free-fall motion		Solving equations (including quadratic)		
And theories   Measurements, units and estimations   Precision, accuracy and significant figures   1.3, 1.4, 1.5, 1.6		Linear and quadratic relationships		
Measurements, units and estimations  Vector and scalar quantities  Kinematics: 1-D motion  Kinematics, 1-D motion: the Kinematic Equations  Using graphs and kinematic equations to solve problems  Free-fall: a particular case of uniformly accelerated motion  Free-fall: a particular case of uniformly accelerated motion  Free-fall: a problems  Vector and scalar quantities in Physics  Chapter 1: 1.3, 1.4, 1.5, 1.6  Chapter 1: 1.7  All  1.7  All  Chapter 2: 2, 3  2.1  Chapter 2: 2.3  Chapter 2: 2.3  Chapter 2: 2.3  Chapter 2: 2.4, 2.5	Models, laws		Chapter 1:	1
units and estimations  Precision, accuracy and significant figures  Order-of-magnitude estimations  Vector and scalar quantities  Vector and scalar quantities in Physics  Kinematics: 1-D motion  Kinematics, 1-D motion: the Kinematic Equations  Uniformly accelerated motion: the Kinematic Equations  Free-fall: a particular case of uniformly accelerated motion  Free-fall: a particular case of uniformly accelerated motion  Average and instantaneous: speed, velocity, accelerated motion: the Kinematic equations to free-fall motion  Free-fall: a particular case of uniformly accelerated motion  Graphing free-fall motion  Free-fall motion  Free-fall: a particular case of uniformly accelerated motion  Graphing free-fall motion  Free-fall motion  Free-fall motion  Free-fall motion  Free-fall motion	and theories		1.1, 1.2	
Precision, accuracy and significant figures Order-of-magnitude estimations  Vector and scalar quantities Vector and scalar quantities in Physics Chapter 1: 1.7  Kinematics: 1-D motion  Kinematics, 1-D motion: the Kinematic Equations Chapter 2: 2.1  Average and instantaneous: speed, velocity, accelerated motion  Winematics, 1-D motion: the Kinematic Equations Uniformly accelerated motion: the Kinematic Equations  Free-fall: a particular case of uniformly accelerated motion  Graphing free-fall motion  Free-fall motion  Graphing free-fall motion  Free-fall motion  Graphing free-fall motion  Free-fall motion  Graphing free-fall motion	Measurements,	Units and unit conversions	Chapter 1:	1
Vector and scalar quantities in Physics Chapter 1: 1.7  Kinematics: 1-D motion Position and displacement Average and instantaneous: speed, velocity, acceleration Graphing constant-speed and accelerated motion Uniformly accelerated motion: the Kinematic Equations Using graphs and kinematic equations to solve problems  Free-fall: a particular case of uniformly accelerated motion Graphing free-fall motion  Order-of-magnitude estimations Physics Chapter 1: 1.7  All 1.7  All 1.7  All 2.7  All 2.7  Chapter 2: 2.3  Chapter 2: 2.4  2.4, 2.5  Chapter 2: 2.4, 2.5  Free-fall: a problems  Graphing free-fall motion  Graphing free-fall motion	units and		1.3, 1.4,	
Vector and scalar quantities       Vector and scalar quantities in Physics       Chapter 1: 1.7       All 1.7         Kinematics: 1-D motion       Constant-speed motion       Chapter 2: 2.1 through 2.3       2, 3         Position and displacement Average and instantaneous: speed, velocity, acceleration       Chapter 2: 2.3       2, 3         Kinematics, 1-D motion: the Kinematic Equations       Uniformly accelerated motion: the Kinematic Equations       Chapter 2: 2.4, 2.5       3         Free-fall: a particular case of uniformly accelerated motion       Applying the Kinematic equations to free-fall problems       Chapter 2: 2.6       3         Free-fall: a particular case of uniformly accelerated motion       Graphing free-fall motion       Chapter 2: 3       3	estimations	Precision, accuracy and significant figures	1.5, 1.6	
Vector and scalar quantities       Vector and scalar quantities in Physics       Chapter 1: 1.7       All 1.7         Kinematics: 1-D motion       Constant-speed motion       Chapter 2: 2.1 through 2.3       2, 3         Position and displacement Average and instantaneous: speed, velocity, acceleration       Chapter 2: 2.3       2, 3         Kinematics, 1-D motion: the Kinematic Equations       Uniformly accelerated motion: the Kinematic Equations       Chapter 2: 2.4, 2.5       3         Free-fall: a particular case of uniformly accelerated motion       Applying the Kinematic equations to free-fall problems       Chapter 2: 2.6       3         Free-fall: a particular case of uniformly accelerated motion       Graphing free-fall motion       Chapter 2: 3       3				
Scalar quantities   1.7		Order-of-magnitude estimations		
Kinematics: 1-D motion  Constant-speed motion  Position and displacement  Average and instantaneous: speed, velocity, acceleration  Graphing constant-speed and accelerated motion  Kinematics, 1-D motion: the Kinematic Equations  Using graphs and kinematic equations to solve problems  Chapter 2: 2, 3  Chapter 2: 2, 3  Chapter 2: 2.4, 2.5  Chapter 2: 2.6  Chapter 2: 2.6  Chapter 2: 2.6  Chapter 2: 2.7  Chapter 2: 2.7  Chapter 2: 2.8  Chapter 2: 2.9  Chapter 2: 2.6  Chapter 2: 2.6  Chapter 2: 2.6  Chapter 2: 2.6	Vector and	Vector and scalar quantities in Physics	Chapter 1:	All
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Position and displacement  Average and instantaneous: speed, velocity, acceleration  Graphing constant-speed and accelerated motion  Kinematics, 1-D motion: the Equations  Uniformly accelerated motion: the Kinematic  Equations  Using graphs and kinematic equations to solve problems  Free-fall: a particular case of uniformly accelerated motion  Applying the Kinematic equations to free-fall problems  Chapter 2: 2.4, 2.5  2.4, 2.5  Chapter 2: 2.6  Chapter 2: 2.6	Kinematics: 1-D	Constant-speed motion	Chapter 2:	2, 3
Average and instantaneous: speed, velocity, acceleration  Graphing constant-speed and accelerated motion  Kinematics, 1-D motion: the Kinematic Equations  Using graphs and kinematic equations to solve problems  Free-fall: a particular case of uniformly accelerated motion  Average and instantaneous: speed, velocity, accelerated motion: the Kinematic  Equations  Chapter 2: 2.4, 2.5  Chapter 2: 2.6  Chapter 2: 2.6	motion		2.1	
Average and instantaneous: speed, velocity, acceleration  Graphing constant-speed and accelerated motion  Kinematics, 1-D motion: the Kinematic Equations  Using graphs and kinematic equations to solve problems  Free-fall: a particular case of uniformly accelerated motion  Average and instantaneous: speed, velocity, accelerated motion: the Kinematic Chapter 2: 3  2.4, 2.5  Chapter 2: 3  Chapter 2: 3  2.6  Chapter 2: 3  2.6  Graphing free-fall motion		Position and displacement	through	
acceleration  Graphing constant-speed and accelerated motion  Kinematics, 1-D Uniformly accelerated motion: the Kinematic Equations  Using graphs and kinematic equations to solve problems  Free-fall: a particular case of uniformly accelerated motion  Applying the Kinematic equations to free-fall problems  Chapter 2: 2.4, 2.5  Chapter 2: 2.4, 2.5  Chapter 2: 3  2.6  Graphing free-fall motion			2.3	
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Motion  Kinematics, 1-D motion: the Kinematic Equations  Using graphs and kinematic equations to solve problems  Free-fall: a particular case of uniformly accelerated motion  Motion  Uniformly accelerated motion: the Kinematic Equations  Using graphs and kinematic equations to solve problems  Chapter 2: 2.4, 2.5  Chapter 2: 2.6  Chapter 2: 2.6		acceleration		
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particular case of uniformly accelerated motion 2.6  Graphing free-fall motion	Free-fall: a	Applying the Kinematic equations to free fall	Chanter 2:	3
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motion: constant   varying (non-uniform) acceleration   lecture   assign. 2 and 3		1		
		varying (non annorm) acceleration		Non uniform acceleration:
acceleration assign. 2 (problem 4)			1	

## The review session:

The review class will be on Thursday, 2/13 (tomorrow), at 4:00 - 5:00 pm in Van Gogh. We will go over a few problems, but you may also have your own questions.

## Office hours:

I will be in my office on Thursday 2/13, 10 am -12 pm and on Friday, 11 am -12:30 pm. I can also be available at other times, but in this case you should schedule your appointment by email.

Please refer to the Academic support Center schedule for the tutor's hours.