

PHY 115 University Physics I Taught at GCC Main

A general physics course using calculus to develop the principles of mechanics and thermodynamics. Recommended for majors in the sciences and mathematics. Required for engineering and physics majors. Prerequisites: **MAT 220 or MAT 223 Calculus I.**

Course content may vary from this outline to meet the needs of this particular group.

Instructor: Cheryl Dellai Office in Room PS 109 Phone 623.845.3678
E-mail: cheryl.dellai@gmail.com

Lectures:	MTRF	12 - 12:50 PM	Dellai	Room PS167	Sec 16702
Labs:	Wednesday	11 – 1:30 PM 1:40- 4:10 PM	Dellai	Room PS168	Sec 16768/16769
Lectures:	TR	5:20 - 7:00 PM	Joya	Room PS168	Sec 42714
Labs:	Thursday	7:10 – 9:40 PM	Joya	Room PS168	Sec 42715

The Hi-Tech center is available for student use for physics assignments. Each student using the center will log in each time and follow all rules.

Homework Session T/R 11:25 – 11:50 AM PS167

Office Hours: TWF 10-11, M 11-12 and by arrangement
Math Center MR 10-11 AM

Text: **Fundamentals of Physics 9th Ed Extended** by Halliday & Resnick, 2010
or **Fundamentals of Physics 8th Ed** by Halliday & Resnick, 2007
Physics & Spreadsheets by Cheryl K Dellai
Physics Handouts by Cheryl K Dellai

Recommended and Optional Materials

Optional: Interactive Learningware (\$30)
Preparing for General Physics by Pickar, 1993

Equipment: **Calculator** $\Rightarrow\Rightarrow$ With scientific notation, log functions, trig functions.
(BRING Calculator to first lab!)

3 ring notebook $\Rightarrow\Rightarrow$ - For storing lab manual, problem solutions etc.

Storage Device

ATTENDANCE POLICY: Attendance will be taken daily. When a student has accumulated unexcused absences in excess of four class periods, the instructor MAY file a withdrawal form for that student.

WITHDRAWAL POLICY: According to college policy, a student may withdraw from the course during the 1st 7 weeks by submitting a withdrawal form to the Admissions Office. If a student wishes to have the instructor withdraw him or her from the course AFTER the 7th week, it is the responsibility of the STUDENT to contact the instructor about the possibility of a withdrawal.

SAFETY REGULATIONS

Arizona State ARS15-151 specifies that every student, teacher, and visitor in community colleges must wear appropriate protective eyewear while participating in or when observing vocational, technical, industrial arts activities involving exposure to: molten metals; molten metals, cutting shaping, and grinding of materials; heat treatment; tempering or kiln firing of any metals or other materials; welding fabrication processes; explosive materials, caustic solutions and radioactive materials.

Cheating or plagiarism will result in a zero grade for the item.

Audio taping of classes is allowed.

Smoking, eating, & drinking in class is not allowed. Water in a sealed bottle is allowed.

Turn off all cell phones.

Special needs students need to contact me and/or Disability Services 623.845.3080.

Misbehavior or failure to follow instructions is cause for instructor withdrawal.

PERSONS NOT ENROLLED IN CLASS ATTENDING CLASS

No one not enrolled in class is allowed in class. For emergency childcare during class time call **Child Referral Phone Number 623.244.2678.**

COPY OF SYLLABUS ACKNOWLEDGEMENT

Course: **Physics 115**

Semester: **Spring 2012**

E-mail _____

Instructor: **Cheryl K Dellai**

Section: _____ Phone # _____

I acknowledge that I have received a course syllabus for the course described above. I have read it and understand the attendance, withdraw, grading and other policies. I recognize that to successfully complete this course it may require 2 to 3 hours out of class for each hour spent in class.

Signature: _____

Printed Name: _____ **Date:** _____

COURSE COMPETENCIES:

1. Use fundamental physical laws and principles to solve problems encountered in academic and non-academic environments.
2. Develop and use appropriate models that closely represent actual physical situations.
3. Apply problem-solving techniques in terms of logic, efficiency, and effectiveness.
4. Solve problems beyond the level of plug-in type problems.
5. Solve practical engineering and science problems.
6. Use computer systems and techniques in solving a variety of problems.

COMPUTER PROGRAMS

All students have access to the palette which includes Office 2003, Office 2007, Netscape, and Maple. A shareware spreadsheet Aseasyas 4.0Q is available. Instruction in your course folder. <https://files.gccaz.edu/shared/courses/phy1165/cdellai>

Library at <http://www.gccaz.edu/Library>

Grading. 1000 pts total

- 50 pts Assigned project
- 35 pts Student Tests (7 pts/test)
- 25 pts Viewing Mechanical Universe tapes (3 pts/tape ½ page 30 pt maximum) Handwritten
- 100 pts Weekly quiz (last 10 min of class) (5 - 10 pts)
- 200 pts Tests no makeups unless arranged in advance.
- 300 pts Final- comprehensive (2 PARTS)

100 PTS TAKE HOME 200 PTS IN CLASS NO NOTES

Common Final Exam: A common comprehensive final exam consisting of 20 multiple-choice questions from the official textbook test bank will be given to all classes. The composition of the common final will be determined by a consensus of the instructors of the course.

The weight of the common final in the determination of the course grades is left to the discretion of the instructor. However, The following guidelines apply to all students in the course:

No student scoring below 70% on the common final may receive a grade higher than a B.

No student scoring below 50% on the common final may receive a grade higher than a C.

No student scoring below 30% on the common final may receive a grade higher than a D.

60 pts Homework (3 pts/chapter) - due on Thursdays one week after the chapter.
Late homework will receive 1 pt.

30 pts Lab Test
200 pts 10 labs (20 pts) (Lab grades will be scaled)

(50% loss of points for labs more than 1 week late) To receive a course grade of "C" or higher, a student must submit passing lab reports for at least 7 of the scheduled labs. Grades will be reduced on late lab reports (2 weeks late maximum) proportionally down to 60%.

Any student failing the laboratory portion of the course cannot receive a grade higher than a D for the course.

A 90% B 80-89% C 70-79% D 60-69% F < 60%

You need to go to this address: <http://www.learner.org/index.html>.

Click on View Programs at the top, and then look down the list till you find Mechanical Universe. The list of all the episodes is on the page that comes up, and you click on VoD to start viewing an episode.

Name Of Tape Series	Scale 1-5	Score	Time
The Mechanical Universe" (1-52)	Good	3.69	30 min.

1. Intro to the Mechanical Universe	14. Potential Energy	26. Harmony of the Spheres
2. The Law of Falling Bodies	15. Conservation of Momentum	
3. Derivatives	16. Harmonic Motion	
4. Inertia	17. Resonance	45. Temperature and the Gas Laws
5. Vectors	18. Waves	46. The Engine of Nature
6. Newton's Laws	19. Angular Momentum	47. Entropy
7. Integration	20. Torques and Gyroscopes	48. Low Temperature
8. The Apple and the Moon	21. Kepler's Three Laws	
9. Moving in Circles	22. The Kelper Problem	
10. Fundamental Forces	23. Energy and Eccentricity	
11. Gravity, Electricity, Magnetism	24. Navigating in Space	
12. Conservation of Energy	25. Kepler to Einstein	

HOMEWORK SCHEDULE

SCHEDULE IS SUBJECT TO CHANGE WITHOUT NOTICE.

Clearly identify each problem number.

Show all details for solving the problem.

Clearly identify the answer to the problem.

3x5 note card allowed on chapter tests.

CHP ED Problems

SEE COURSE FOLDER FOR 8th edition lists

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
9th	9th	9th	9th	9th	9th	9th	9th	9th	9th	9th	9th	9th	9th	9th	9th	9th	9th	9th	9th
9	13	1	2	3	5	5	2	2	4	2	10	1	5	4	10	6	2	8	5
13	17	7	8	19	13	8	3	7	5	10	13	11	14	9	15	7	9	9	18
14	19	14	13	34	16	14	19	12	7	12	19	13	24	11	16	21	10	11	26
17	20	17	17	37	19	35	27	17	25	15	21	20	28	14	21	27	14	26	34
18	27	24	22	55	28	41	29	22	28	25	25	32	35	33	33	31	21	39	42
23	28	32	32	57	30	46	32	23	41	29	31	44	53	41	40	32	23	53	52
24	29	33	33	58	34	49	33	24	42	34	34	50	61	53	43	38	26	56	72
26	36	34	48	75	51	53	34	29	45	39	36	61	63	61	56	43	37		
42	37	43	49	77	59	56	36	49	51	45	47	75	71	63	59	51	46		
49	42	46	57	88	60	57	47	59	56	65	52	80	73	75	70	56	52		
	43	47	62	87	67	59	53	60	66	66	54	83	74	82	76	61	61		
	44	51	68	93	68	61	56	61	71	79	55	85	79	84	78	65	82		
	50	53	70		69	62	58	64	83	82	64	87	83	87	79	66			
	57	55	73		71	66	63	73	85	87	68	88		90	84	70			
	63	61	75		77	68	69	75	90	88		93		91		71			
	66	64	83		82	72	78	79		92		97		93		78			
	69		90		94	77	80	81		93				100		81			
	74		111		95		91	88						106		88			
	78		116		96			97											
	90							100											
								103											

SCHEDULE:

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Week	Chapter	Lab	
1. Jan 17	1,2	(1) Behr Free Fall	Monday MLK Test given In labs
2. Jan 23	2,3	(2) Vectors	Test 1 Chapter 1- 4
3. Jan 30	4,4	(3) Newton's 2nd Law	Test 2 Chapter 5- 9
4. Feb 6	5,5	(4) Friction	Test 3 Chapter 10-13
5. Feb 13	6,6	Exam #1 MONDAY PRESIDENT'S DAY	Test 4 Chapter 14-20
6. Feb 20	7,8	(5) Scientific Method (handout)	
7. Feb 27	8,9	(6) Ballistic Pendulum	
8. Mar 5	9,10	Exam #2	3x5 note card allowed on chapter tests
Mar 12		SPRING BREAK	
9. Mar 19	11,12	(7) Moment of Inertia	
10. Mar 26	12,13	(8) Rotational Energy	
11. Apr 2	14,15	Exam #3/ Lab Test due	
12. Apr 9	16,16	(9) Specific Gravity	
13. Apr 16	17,18	(10) Specific Heat /Boyle's Law	
14. Apr 23	18,19	(11) Speed of Sound	
15. April 30	20,20	Exam #4	
May 7	FINALS	Wednesday at 12 AM	