

PHYSICAL SCIENCE 111DEN SYLLABUS

The Truman College Mission Statement

Our Mission dedicates us to deliver high-quality, innovative, affordable, and accessible educational opportunities and services that prepare students for a rapidly changing and diverse global economy.

Our Vision guides us to enrich the quality of life of our students and the community we serve through creative responses to educational, economic, social, and global challenges.

Our Core Values define us through

- integrity and commitment
- responsibility and accountability
- respect and fairness
- diversity and inclusiveness

Our Teaching and Learning Goals commit us to develop students who

- communicate effectively in both written and oral forms
- gather, interpret and analyze data
- demonstrate the ability to think critically, abstractly and logically
- work with a variety of technologies
- exhibit social and ethical responsibility
- perform productively in the workforce
- demonstrate the ability to learn independently
- gain awareness of their role in the global community

Our Assessment directs us to provide valid and reliable means of measuring and refining the effectiveness of our teaching to enhance student learning and success.

**TRUMAN COLLEGE
OFFICE OF INSTRUCTION**

Course Syllabus Cover Sheet

Department PHYSICAL SCIENCE & ENGINEERING Semester/Year: Spring 2012
 Instructor: **Professor PETER PANAGOULIAS** Date: 1-10-12

Course Title (include department and course numbers, in addition to the section)

PHYSICAL SCIENCE 111. General Course I. 077-0111DEN

This course is required for the following students: 2. Was course syllabus (including course objectives and outline) distributed to the students on the first day of class?
 Yes No

Remedial/Developmental

General Education

Major in

Other _____

Hours: 4 Credit 5 Contact

Length of Course: 16 weeks

8 weeks

Other _____

3. Methods of instruction and percentage of time spent per week (check all which apply):

Lecture Lab Discussion Other(Video tapes, CDs)
30% 30 % 30 % 10 (%)

4. Catalog Description (attach Xerox from new Truman Catalog which includes prerequisites, where appropriate, and the "Writing Across the Curriculum" statement).
SEE ATTACHED

5. Text (include title, publisher, edition, if applicable, and publication date):
SEE ATTACHED

6. Course Grade Determination (grading standards and specific weight (%) for each activity such as exams, quizzes, projects, assignments, etc.; include numerical cutoff points for A, B, C, and D grades; students should be able to calculate their grades objectively).
A: 85-100%; B: 70-84%; C: 55-69%; D: 45-54%; F: Under 44%
For details see attached

7. Attach the syllabus you distribute to students in this course. Your syllabus should include:

- a. an outline of the topics to be covered in the order in which they are taught, including dates when assignments are due;
- b. course objectives in measurable terms;
- c. updated bibliography (outside reading, video tapes, or computer materials and where they are available);
- d. rules about attendance, withdrawal, incomplete work, and make-up procedures.

CITY COLLEGES OF CHICAGO
TRUMAN COLLEGE

PHYSICAL SCIENCES/ENGINEERING DPT.

COURSE SYLLABUS

(General Information)

Physical Science 111 – Spring 2012

Section: PS111 DEN (Starts 1-30-12; Ends 5-9-12)

Instructor: **Professor Peter Panagoulas**
Office Room: 3834; telephone: (773) 907-4693.
Email: ppanagoulas@ccc.edu
Course Website: On Blackboard.

Office Hours: MW 10:50- 1:20 pm
TR 4:30- 6:00pm
And by appointment.

Class Meeting Time: MW 1:30pm -4:05pm in room 3833
and occasionally, in room 3186.

Required Materials:

Textbook: *Earth Science*, by Tarbuck, Lutgens & Tasa
12th Edition, Prentice Hall

GEODE: Earth Science CD-ROM: This comes with the textbook (free).

Textbook Companion Website: [:http://www.prenhall.com/tarbuck](http://www.prenhall.com/tarbuck)
Some assignments may be done on this website.

Supplementary Materials:

HANDOUTS: a) To supplement material in the textbook and stress important
concepts. They will be given out in class, as needed.

b) On sample **review questions**, for practice and to prepare the student for
evaluation. They will be given out in class. .

Catalog Description: General Course I - Introduction to the scientific method,
astronomy, geology, meteorology. Writing assignments, as
appropriate to the discipline, are part of the course. 3 lecture
hours and 2 lab hours per week. *4 credit hours*

Length of Course: 16Weeks

Prerequisite: None

WAC: Writing Across the Curriculum (WAC) assignments will be required as appropriate to the topics.

Course Content: This course will highlight **Geology, Astronomy and Meteorology**.

Laboratory work: The lab component is an integral part of the course and will reinforce concepts introduced in the lecture. Generally labs will be performed in a group setting (2 students per group). Partners work together to do the lab but each student submits his/her own separate report. **All Lab reports will be collected.** Usually individual quizzes will be given at the end of the period to assess what each student learned from the lab. **The lab grade will be the quiz grade.** Students will be allowed to use the lab when completing the quizzes. With a few labs there will not be an associated lab quiz. In these cases **lab reports will be graded to form the lab grade.** *A list of lab experiments is included in this syllabus.*

Lecture Quizzes: A lecture quiz will be given frequently except when a major exam is scheduled. Quizzes will be given after a short review of the homework at the beginning of the class period. **No make-up quizzes will be given;** instead the lowest one quiz grade will be dropped. **In the event that you miss any quiz, a grade of zero will be entered for it.** The grade for the lecture quizzes will be based on the best (highest) 10 quiz scores. Each quiz will count as 10 points, for a total of 100 points or **10% of the final course grade.**

Homework: There are two kinds of homework assignments. 1) **End of chapter questions** and 2) **Extra sets** of homework assignments given by the Instructor.

Doing homework will increase your chances of success in this class. Homework will be assigned weekly and will be due on the next class period (unless otherwise stated). If you miss a class you will need to request any handouts or homework assignments you missed. Homework assignments may be obtained from the course blackboard website.

This is your responsibility. Also note, the homework assignments have a printed number that is just for reference and is not necessarily the sequential order that we follow.

. TOPICAL COURSE OUTLINE (READING LIST)

Supplementary Texts: Optional => A) **Geology**, Rhodes, Golden
 Optional => B) **Landforms**, Adams & Syckoff, Golden Press
 Optional => C) **Weather**, Lehr, Burnett, & Zim Golden Press
 Optional D) **Rocks & Minerals**, Zim & Shaffer, Golden Press

Textbook: The main one => E) **Earth Science**, 12th ed.(or latest) Tarbuck , Lutgens & Tasa
 Prentice Hall, 2009.

Supplementary Resources:

GEODE: Earth Science CD-ROM. It comes free with the textbook..

Textbook Companion Website: <http://www.prenhall.com/tarbuck>

UNIT I: GEOLOGY

Week	Topics to be covered	Page number	Chapter
1.	1/30/12 Introduction. Scientific Method	1-27	1
	Earth Materials		
	Minerals: Building Blocks of Rocks	30-49	2
2.	2/6/12 Rocks: Materials of the Solid Earth	52-81	3
	Sculpturing Earth's Surface		
	Weathering, Soil, and Mass Wasting	84-113	4
3.	2/13/12 Running Water and Groundwater	116-151	5
	Glaciers, Deserts, and Wind	154-185	6
	Forces Within		
4.	2/20/12 Plate Tectonics	187-217	7
	Earthquakes and Earth's interior	219-245	8
5.	2/27/12 Volcanoes and Other Igneous Activity	247-281	9
	Mountain Building	284-307	10
	Deciphering Earth's History		
6.	3/5/12 Geologic Time	310-333	11
	A Brief Summary of Earth's History	336-365	12

MIDTERM EXAM

UNIT II: METEOROLOGY AND ASTRONOMY

	Earth's Dynamic Atmosphere		
7.	3/12/12. The Atmosphere: Composition, Structure, and Temperature	445-475	16

8.3/19/12.	Moisture, Clouds, and Precipitation	477-511	17
9. 3/26/12	Air Pressure and Wind	518-537	18
	Weather Patterns and Severe Storms	539-567	19
Earth's Place in the Universe			
10. 4/9/12	Origin of Modern Astronomy	599-623	21
11. 4/16/12	Touring Our Solar System	625-651	22
12. 4/23/12	Light, Astronomical Observations, and the Sun	653-673	23
13.4/30/12	Beyond Our Solar System	675-701	24
14.5/7/12	Review		

FINAL EXAM
EXIT TEST EXAM

Topical Outline for All Branches - City Colleges of Chicago

PHYSICAL SCIENCE 111

Topic	Items to be covered for final examination
SCIENTIFIC METHOD	
General Principles	Facts, hypotheses, theories, laws Induction and deduction
PHYSICAL GEOLOGY	
Gross structure of earth	Size, shape, major features: atmosphere, hydrosphere and lithosphere
Minerals	Quartz, silicates, feldspars, micas, ferromagnesians
Rocks	
General types	Bed rock, mantle rock, and soils
Specific types	
Igneous	Granite, gabbro, lava, basalt, rhyolite
Sedimentary	Clay, shale, sandstone, limestone, coal
Metamorphic	Gneiss, marble, schist, slate, quartzite
Weathering and erosion	
Gradation	
Weathering agents	
Mechanical	Freezing of water, wind, loess, dunes
Chemical	General, nothing specific. No chemical equations

Ground water	Water table, springs, artesian wells, geyser, cave, sinkhole, stalactite, stalagmite, petrified wood, geodes
Running water	Valleys(young, mature, old), peneplain, meanders, oxbows, water falls, natural levee, alluvial fan, delta
Glaciation	Moraine (terminal, ground), outwash plain, cirque, U-shaped valley, valley glacier, ice sheet, hanging valley, kames, eskers, drumlins
Ocean coasts	Continental shelf, terraces
Vulcanism:	Magma, batholith, lacolith, dike, sill, lava, intrusive rock (granite and gabbro), extrusive rock (rhyolite and basalt), crystal size and rate of cooling.
Diastrophism:	Evidence of diastrophism, types of earthquake waves (primary, secondary, long (omit nature and speed of each), seismograph, folds (anticline, syncline, geo-syncline, geo-anticline), faults (thrust, tension), unconformity, tectonic plate motion

HISTORICAL GEOLOGY	
<p>Determination of age of geological formations</p> <p>Keys to Historical Geology</p> <p>Geology of the Chicago Region</p>	<p>General discussion of</p> <ul style="list-style-type: none"> Rate of accumulation of sediments Rate of erosion Total salt in the oceans Radioactivity <p>Index fossils</p> <p>Law of Uniformitarianism</p> <p>Law of Superposition</p> <p>Law of Unconformity</p> <p>Law of Igneous Intrusion</p> <p>Law of Organic Correlation</p> <p>Highlights only</p>
METEOROLOGY	
<p>The Atmosphere</p> <p>Properties</p> <ul style="list-style-type: none"> Pressure Temperature Humidity Wind Methods of investigating upper atmosphere Atmospheric circulation Types of precipitation Air Masses Cloud Types Weather Forecasting 	<p>Extent, content, strata (troposphere, stratosphere, ionosphere, general)</p> <p>Variation and measurement, barometer (aneroid, mercurial), units (lbs/in², cm. or mm. of Hg, millibars)</p> <p>Thermometer, units (Celsius = Centigrade and Fahrenheit scales)</p> <p>Relative humidity, dew point, wet and dry bulb thermometer</p> <p>Anemometer, vane, air currents and circulation</p> <p>Balloons, rockets, satellites (polar = NOAA and geostationary = GOES)</p> <p>Primary effects of heat from sun</p> <p>Effects due to rotation of earth</p> <p>Seasonal movement of wind zones</p> <p>Doldrums, trade winds, horse latitudes, westerlies, polar belts</p> <p>Local effects</p> <p>Rain, snow, sleet, hail, fog, dew, frost, man-made rain, cloud seeding</p> <p>High and low pressure areas. Cold fronts, warm fronts, stationary fronts and type of weather associated with each and why. Thunder storms, tornadoes, hurricanes</p> <p>General description of clouds: shape, appearance, etc., with altitude and fronts</p> <p>Weather maps— isobars and other information in symbol form. Change in wind direction, temperature and pressure with passage of fronts</p>

ASTRONOMY	
Earth as a solar body	Radius, diameter, circumference and other general physical properties
Evidence for shape of the earth	Equatorial bulge Magellan's voyage Disappearance of ships away from shore Changing position of stars as one travels north or south Earth's shadow on the moon High altitude photographs Artificial satellites
Motions of earth	Rotation, revolution, pole, axis, equator, zenith, star trails, Foucault pendulum, ellipse, focus, parallax, perihelion, aphelion
Measurement of time and distance	Solar day—variation and mean solar day, sidereal day, Greenwich meridian, standard time meridian, time zones, international data line, celestial sphere, poles, equator, longitude, latitude, arctic circles, season, equinoxes, solstices, plane of the ecliptic, celestial equator, year, Julian calendar (characteristics), Gregorian calendar and revised leap year rule.
Theories of Solar System	Ptolemy explanation
Geocentric theory	Copernicus explanation
Heliocentric theory	Retrograde motion
Law of Planetary Motion	Tycho Brahe's observations Kepler's three laws of planetary motion (by name not just by number) Invention of telescope and Galileo's observations General description of Newton's explanation
Other members of the Solar system	
Moon	Rotation and revolution. Phases, tides, eclipses (lunar and solar), surface features and characteristics
Planets	Name and position of each Inferior and superior, outer versus inner type characteristics
Comets	Orbits and nature. Halley's Comet
Asteroids	Brief description
Meteors and meteorites	Nature and composition
The sun	Age, size, mass, rotation, atmosphere, source of energy, sun spots, utilization of sun's energy
Other stars	Brief general description, Galaxy, Milky Way, Big Bang
Origin of the Solar System	Other planetary systems

GENERAL COURSE INFORMATION

1. COURSE DESCRIPTION

Physical science 111 is a course that deals with several topics encountered in **Geology, Oceanography, Meteorology and Astronomy**. The course is intended for students who must complete their general education requirements and whose mathematical preparation is at a minimum. For a detailed list of the topics to be covered in this course, see attached sheet on Topical Outline for all Branches-Chicago City Colleges. Numerous applications will be illustrated and a variety of questions will be answered, to provide an opportunity for the student to assimilate and familiarize himself/herself with the subject matter.

2. COURSE GOALS AND OBJECTIVES

In this course, we seek to introduce the student to the facts and concepts of elementary Earth Sciences. The student will gain an understanding of the fundamental role of the various processes of the Earth System that affect our everyday way of life. Although our primary aim is for a qualitative understanding, some use will be made of simple mathematical techniques (mainly arithmetical, in the lab).

The main goal is the mastery of course objectives they are needed to: A) recognize his/her interaction with the physical environment B) apply habits and skills of scientific thought to personal and social problems C) choose a socially useful and personally satisfying vocation D) stimulate the student to further interest in the discipline and other related fields). The topics (units) to be covered are listed above and a document of common course objectives is included in the syllabus. To summarize:

General Education Objectives

A student who successfully completes the course will demonstrate competence in four areas:

1. Knowledge of course content;
2. Critical thinking;
3. Writing; and
4. The use of technology as a learning resource.

OBJECTIVES

The most important objectives of this course are: 1) to acquaint the student with the way scientists think, i.e., the scientific method and attitude; and 2) to study several major scientific ideas, particularly in connection with the facts of our everyday environment -- the landscape, the skies, and the weather. The emphasis in our study will be on concepts and facts with only a limited use of mathematics

3. METHOD OF INSTRUCTION

The method of instruction to be used in this course will stress the active participation of the student, since he/she is in the center of the learning process and the beneficiary of the efforts and outcomes of this course. In this class, we will be using the Lecture-Discussion type of approach which consists primarily of the presentation of the material using concrete examples and applications followed by classroom discussions, oral and written drills, frequent quizzes, daily homework assignments, answering questions and lab activities. The emphasis will be in obtaining participation and motivation during classroom practice.

4. OUTLINE OF INSTRUCTION

The course content is divided into topics (units) listed in the topical outline. Each unit is of approximately three weeks duration. A course Topical Outline is included in this syllabus. For each chapter within a unit, the reading assignment (textbook pages to be read) and the Homework questions, exercises and problems to be worked out and handed in are listed in the topical outline given above (see policy on homework).

A number of Exams and quizzes will be given on each and every unit upon its completion(see policy on Exams). The purpose of each test is two fold: to evaluate the student's performance and to test for mastery of the course instructional objectives, as related to the material of the unit. It is our hope that this process will

identify student strengths and/or weaknesses and provide the Instructor with a reasonable amount of time for corrective action, if necessary.

5. COMMON COURSE OBJECTIVES

A list of the common course instructional (behavioral) objectives is also included in this syllabus. It is suggested that the student should read them very carefully to find out what is expected of him/her and what will be accepted as adequate achievement. A periodic review of the instructional objectives should be made by the student for the purpose of estimating his/her progress in this matter.

At this point, it is quite important for the student to understand the difference and make the distinction between course description and course objective.

A course description tells you something about the content and the procedures of the course. It tells only what the course is about. It might tell you which field you will be playing on. It does not explain what will be accepted as adequate achievement; it does not confide to you the rules of the game; it does not tell you where the foul lines are or where the goal posts are located or how you will know when you have scored.

A course objective describes a desired outcome of the course. It tells you what you will be like as a result of some learning experience. It explains what will be accepted as adequate achievement. It confides to you the rules of the game. It tells you where the goal posts are located and how you will know when you have scored. An objective has three main parts: A) an outcome statement which describes the task, activity, knowledge or accomplishment being sought B) conditions and circumstances under which the outcome will be measured or observed (time limits or materials you will be confronted with) C) it states the criteria of minimum acceptable performance(standards to be used for judging successful performance of task...).

6. REQUIRED COURSE MATERIALS AND RESOURCES

- A. **Textbook** adopted: see the course outline for title, author, publisher edition and assignments.
- B. **Notebook:** I suggest that you keep good notes in class. The notes will be an aid in reviewing for exams. Because you will encounter a large number of definitions in this course, which will probably be new to you, I also suggest that you keep a list of these definitions or at least a vocabulary list of the new words you encounter and their meaning. It is important not to get behind on memorizing the meanings of words and concepts new to you. Otherwise, you will be snowed under by the end of the course..
- C. **Supplementary Materials:**
 1. **Supplementary books** are listed above. They are included to help students desiring to do extended reading. (not required, for suggested reading only). Additional books can be suggested, by the instructor, upon request.
 2. **CLASS HANDOUTS:** They will be given out in class after the completion of every chapter, for the purposes that can be summed up as follows: a) To stress important concepts b) To supplement material in the textbook (whenever appropriate) c) To supply the student with extra practice on questions and exercises d) To help the student acquire problem solving ability by introducing different problem solving techniques e) To review and prepare the student for the exams.
 3. **Transparencies:** They will be used, on many occasions, to illustrate important concepts and enhance many ideas.
 4. **Videotapes and Movies:** a) Videotapes (from the department collection) will be used during class. A list of such tapes and films is included in the syllabus. The interested students can view them before or after class time, upon prior arrangements with the instructor. A list of videotapes and films is included in the syllabus..
 5. **A set of flashcards:** This comes free with the textbook. It is very helpful for quick review of many key terms, words and definitions in the text.
 6. **GEODE: Earth Science CD-ROM:** A free copy comes with the textbook. It is a dynamic program that reinforces key concepts of the course. A start up page is on our blackboard website.
- D. **Supportive services and Instructor's office hours:** Upon need, the student may be directed to the college supportive services for tutoring and any other available services, provided there are tutors available. The instructor, also, always keeps office hours and students are encouraged and welcome to visit him for additional assistance. You will not be penalized for not knowing the answers. Relevant information is given in the syllabus (page 1).

E) **Group Study:** Students should have a section partner or partners, exchange phone numbers and other information and try to work together. There are advantages in working with a partner; For example, if you are absent, your partner will tell you what happened in class and give you any assignments that you may have missed. But, do the Homework alone, if it is to serve its purpose.

7.. ATTENDANCE POLICY

In order to assist you in your academic career and help you to complete this course successfully, the following information is being provided on the attendance policy. Please, read this information carefully:

Truman College is not “an attendance taking “institution. However, due to the nature and structure of this course (labs, quizzes, problem solving, etc.), **attendance will be taken during every class session and students are expected to attend all scheduled class sessions on a regular basis.**

- ⇒ All classes will begin on time and students are expected to be in class on time.
- ⇒ School attendance policy as described in the student handbook will be followed.
- ⇒ There is no such thing as an excused absence.
- ⇒ **Tardiness:** Three (3) tardies are equivalent to one (1) absence.
- ⇒ There is no make-up for a missed lab. A missed test of any kind or a **missed lab report** will be scored zero (when applicable).
- ⇒ **No make-ups will be allowed for missed quizzes!**
- ⇒ A make-up test for a missed exam may be allowed, depending on the nature of the excuse (if serious) and a promptly made appointment with the instructor.

Absence does not excuse a student from completing the course work, like homework or other assignments.

If a student does miss a class he or she should do the following: a) Read the material for the missed class and b) attempt to do the homework problems or other applicable assignments.

8. LABORATORY (No lab for 101, only for 111).

Laboratory sessions are a part of the course. A student must attend all of the sessions, do all of the experiments and hand in all Lab reports, in order, to receive full credit. There will be 13-14 experiments for which reports will have to be written up. The reports will be graded on an appropriate-point scale to form your Lab grade.

A lab manual has been assigned with the textbook, with a variety of experiments. The instructor will select the ones to be performed and will announce which ones in class, well ahead of the date to be performed. This will guarantee availability of equipment and make sure that the relevant material has been covered in class before the experiment. For some labs a write-up instruction booklet will be given as a handout. **The final lab grade** will be based on the best (highest scores) 10 individual lab grades. Each such individual lab grade, counts as 25 points, for a total of 250 total points or **25% of the final course grade.**

9. POLICY ON ASSIGNMENTS AND EXAMS

There will be only two standing assignments; namely, reading of the current text material and a homework assignment. Additional special assignments, if any, will be given out in class at appropriate times.

Reading Assignment: This standing assignment is to read the current text material, as stated in the course topical outline, before coming to class. It is a good idea to read a chapter (at least once) before it is covered and then reread it after it has been covered in class.

Homework: Homework assignments for the entire course are given in the course outline. Students should do the homework and hand it in on time; this will insure them success. Regular and timely homework will be corrected and returned. It must be understood that answering questions and working and solving problems is absolutely necessary to learning the course material. These are to be done at home after you have studied the chapter. If they are to serve their purpose, you should do them alone without anybody's help. Being able to do the homework provides a check of how well you have studied and understood the chapter. On difficult questions and problems, try your best for 15 minutes before giving up. Then get someone to help you or bring them to the next lecture in class so that we may discuss any points you don't understand or ask me in my office during my office hours. It is important to try the problems early in the week so that there is time before a test to ask about the points you don't understand. Some of the scheduled problems of each chapter may be used in making up quizzes or tests. Problems are your best aid to learning physical sciences and they may be done in any way helpful to you. There are advantages working with a partner.

The **final Homework grade** will be based on the best nine (9) assignments (highest 9 scores). Each assignment will count as 10 points for a total of 100 points or **10% of the final course grade**.

NOTE: Homework assignments are due and must be turned in to the Instructor, during the first class session of the week following the presentation and completion of the discussion of a chapter

Exams: In addition to Lab quizzes and the Lecture quizzes described above (given to test your progress), there will be two major exams (a one-hour **midterm** and one-hour **final**) as well as an **Exit test Exam**. All tests will be multiple choice with probably a few short answer type questions. All questions will be similar or of the same level of difficulty as the homework questions or the sample questions given in the handouts. All tests will be announced in advance (for dates, see topical course outline). **Attendance is obligatory for all tests**. No make-ups will be given (except in certain individual cases where it will be evident that the student had a good enough and serious reason (with proof) not to take the test or exam). **No one is exempted from the Final Exam and the Exit test exam**. Tests and Exams may be taken before the scheduled date by appointment. A missed test of any kind will be scored zero.

Midterm Exam:

The midterm exam will consist of about 70 questions and will be based on the first part of the course (Geology). Each question will count as four (4) points, for a total of 280 points or **28% of the final course grade**. Your score will be the total number of questions you get right times four points.

Final Exam:

The final exam will consist of about 70 questions and will be based on the second part of the course (Astronomy and Meteorology). Each question will count as four (4) points, for a total of 280 points or **28% of the final course grade**. Your score will be the total number of questions you get right times four points.

Exit test Exam:

The exit test will consist of about 50 questions and will be based on the entire course (material covered during the semester). It is a **pass/ fail** test. It is **obligatory** for all students (per departmental rules and regulations, all students must take it and **pass it**). **Failure to pass the exit test will result in a final course grade of F**, even in situations where the student passes the class on the basis of all other evaluations (**Students need to get a cumulative minimum score of 20 correct answers to the exit test questions, out of a total of 50 questions on the test, in order to get a grade of C or better for the course**). **On the other hand, the passing of the exit test will not guarantee the student's passing of the course**.

In order to provide some incentive to the student, the exit test exam will be graded for **extra credit**. Each question will count as two (2) points, for a total of 100 extra points or **10% of the final course grade**.

Based on your total score out of a possible maximum of about 1000 points on all exams, lab score, lecture quizzes, homework and class participation, a letter grade will be assigned to you as a **final grade** in the course.

10: MAKE-UP PROCEDURE

For make-up procedures, on homework, lab and exams, see sections 7, 8 and 9.

11. STUDENT EVALUATION (GRADING PROCEDURE)

Grades are based on student performance, not on attendance. Truman College is not an "attendance taking" institution.

I: MIDTERM GRADES:

At midterm, a student will be eligible to receive either a letter grade (A through F) or an ADW (Administrative Withdrawal).

A) LETTER GRADE

A student who is actively pursuing the course work and course objectives will be assigned a letter grade (A through F, depending on the student's level of performance and based on the total amount of coursework required and due by midterm), according to the scheme described

below for the Final Grade (see Point Distribution and Grade Distribution below). What constitutes active pursuit of coursework and course objectives? A brief definition is given below:

Active Pursuit of Course Objectives Policy

Actively pursuing course objectives may be defined as **“the student has attempted and completed (to a certain level of performance which determines his/her letter grade) at least 70% of the due course work required by the midterm date”**. Further, **the student has attempted and completed at least 20% of the due course work required for the three weeks prior to midterm”**.

B) ADW (Administrative Withdrawal)

A student who is not actively pursuing the course work and course objectives will be assigned an ADW. What constitutes non-active pursuit of coursework and course objectives? A brief definition is given below:

Non-active Pursuit of Course Objectives Policy

Non-pursuit, of course objectives, may be defined as **“The student has not attempted and/ or not completed at least 70% of the due course work required by the midterm date**. Further, **The student has not attempted and/or has not completed at least 20% of the due course work required for the three weeks prior to midterm”**.

Some examples of a student who will be given an ADW for non-pursuit of coursework and course objectives may be the following:

- He/she attends every class or almost all class meetings, but does little or no coursework required and/or fails to submit it on time.
- He/she does not attend regularly and as a result of his/her absence misses quizzes, labs and other class activities.
- He/she is continually absent for the three weeks prior to midterm and fails to complete any of the coursework for this period.
- On the other hand, spotty attendance record but with completion of coursework will result in a letter grade and not an ADW.

II: FINAL COURSE GRADES:

The Final Grade the student **earns** in the course at the end of the term will be determined by the following point system (**provided that the student does not fail the exit test**).

A. POINT DISTRIBUTION

- a. Lecture Quizzes:** They count as 10% of the final course grade (100/1000).
- b. Midterm Exam:** It counts as 28% of the final course grade (280/1000).
- c. Final Exam:** It counts as 28% of the final course grade (280/1000).
- d. Lab Grade:** It counts as 25% of the final course grade (250/1000).
- e. Homework and Other Evaluations:** They count as 9% of the final course grade (90/1000).

f. Exit Test Exam: It counts as extra 10% of the final course grade (100/1000).

B. GRADE DISTRIBUTION

The grades that will be earned by the students are approximately based on the following point system:

GRADE	# OF POINTS EARNED	PERCENT OF POINTS EARNED (Maximum 1000 points)
1. A	850-1000	85%-100%
2. B	700-840	70%-84%
3. C	550-690	55%-69%
4. D	450-540	45%-54%
5. F	Under 450	Under 44

12. OTHER RULES AND REGULATIONS OF THE COURSE:

A. Academic Integrity is of extreme importance. It is expected that every student comply with the Academic Integrity Statement as stated in the student's handbook.

B. It is the responsibility and obligation of the student to abide by the rules set forth (and those stated in the student's handbook), the aims of which are to enable the instructor to deliver the expectations of the course and equitably to evaluate the student's performance.

Summary of Some Other Course Policies

Cellular Phones:

Please turn your cellular phones off at all times. Making or receiving phone calls, sending or receiving text-messages is not allowed during the class period. Students who violate this rule during a class session will be asked to leave the class.



Calculators:

The use of a calculator may be necessary in some labs. Students are expected to bring their calculator to class at all times. Please **do not purchase** an expensive calculator. It is not true that more expensive calculators are easier to use. **On exams, students will not be allowed to use a graphing calculator or use a cell phone as a calculator.**

Plagiarism:

Plagiarism whether or not intentional, is a serious offense and may result in failure of this class and/or referral to the college for further disciplinary action.

Behavior in class:

Please, be respectful of your fellow students and refrain from any activity that creates a disturbance or interferes with the class.

COURSE OBJECTIVES

**CITY COLLEGES OF CHICAGO
PHYSICAL SCIENCE COMMON COURSE OUTCOMES
COURSE: PHYSICAL SCIENCE 111**

The distinction between Physical Science 101 and Physical Science 111 is only that the latter includes a laboratory component while the former does not. Outcomes listed below which primarily involve laboratory skills are for Physical Science 111 only.

Upon completion of the course, the successful student will be able to do the following:

In Geology:

1. Differentiate between minerals and rocks and identify many of the common rocks.
2. Classify types of rocks and draw the rock cycle.
3. List causative agents and products of various types of erosion.
4. Describe the causes and results of diastrophism.
5. Classify earthquake waves, faults and types of unconformities.
6. Use the laws of geology to determine the relative age of rock structure.
7. Describe the gross structure of the Earth, i.e., crust, mantle, core.
8. Sort and identify a mixture of minerals according to physical properties such as hardness, color, streak, crystal form, luster, cleavage, etc.
9. Identify geological land forms and describe their origin.
10. Relate diastrophism and land forms to tectonic plate motion.
11. Describe the composition and structure of the oceans.
12. Describe the origin and effect of ocean circulation.

In Meteorology:

13. Describe the structure and composition of the atmosphere.
14. Describe atmospheric circulation patterns.
15. Read simple weather maps and identify fronts, air masses and wind direction.
16. Describe the movement of air about high and low pressure centers.
17. Use principles of air mass and frontal movement to predict weather in various parts of the U.S. with the use of daily newspaper maps and weather satellite information.

In Astronomy:

18. Give evidence of the sphericity, rotation and revolution of the Earth.
19. Use latitude and longitude to identify geographical and time zones on Earth.

20. Describe the motions of the Earth and the Moon in their orbits and relate the motion to: lunar phases, lunar and solar eclipses, origin of the seasons, etc.
21. State and explain the various cosmological models.
22. List Kepler's Laws.
23. Use scale models as they relate to astronomical systems.
24. List types of stars and describe the process of stellar evolution.
25. Describe composition, structure, and possible origin of the solar system.
26. Describe the structure and evolution of the universe.

In all three areas:

27. Use laboratory equipment to perform experiments and demonstrations.
32. Use computers and the internet to do various assignments.

Truman College General Education Goals

The student exhibits social and ethical responsibility and is aware of her or his place in the global community.

The student performs effectively in the workplace and has the ability to work and make effective use of a wide variety of current technologies.

The student communicates effectively in both written and oral formats.

The student demonstrates the ability to think critically, abstractly, and logically.

The student gathers, interprets and analyzes data.

The student demonstrates the ability to work independently.

I. HOW TO STUDY

Classroom instructors very often are asked the questions: How should I study? How can I prepare for an exam? Even though, there is no simple answer to these questions, yet I would like to offer some suggestions based on my own experience in learning as a student and on my personal observations as a teacher over the years.

The first and most important element in the learning process is to maintain a positive attitude towards the subject matter..

It is important to understand the basic principles and concepts in a chapter before you try to answer any of the assigned questions.

Read the textbook carefully before attending your class and write down any points which are not clear to you.

Always attend class and keep careful notes during the lecture period.

Do not hesitate to ask questions about points and ideas that do not seem clear to you and which require clarification.

Remember that very few people are capable of absorbing the material after only one reading or after attending class. Read your textbook and your notes several times.

It is important to make a study schedule.

II. STUDY SCHEDULE

Make a study schedule as follows:

Read the course syllabus

Set up a regular study schedule, on a daily basis.

Read the material in the text, before coming to class.

As a general rule of thumb, you must spend at least two hours of study time for every hour in class.

If you have trouble with the course, seek the advice of the Instructor or

Avoid the common practice of delaying study until a few days before the exam. Very often this bad practice leads to a disaster.

Bear always in mind that the Instructor is there to do nothing else but to discuss questions with the student. It is a rare opportunity. You should not miss it. This kind of communication is **encouraged** and **welcome**. You will not be penalized for not knowing the answers.

On a daily basis, try to solve as many questions as possible. " You do not know much until you have practiced on how to solve problems". Do not deceive yourself into thinking that you understand the problem after seeing its solution. **You must be able to solve the problem or similar problems on your own**

The following statement is a quote from A Nation at risk- The Imperative for Educational Reform by the National Commission on Excellence in Education, April 1983 (it may be appropriate to read to classes).

TO STUDENTS

You forfeit your chance for life at its fullest when you withhold your best effort in learning.

When you give only the minimum to learning, you receive only the minimum in return.

Even with your parent's best example and your teacher's best efforts in the end it is your work that determines how much and how well you learn.

When you work to your full capacity, you can hope to attain the knowledge and skills that will enable you to create your future and control your destiny. If you do not, you will have your future thrust upon you by others.

Take hold of your life, apply your gifts and talents, and work with dedication and self-discipline.

Have high expectations for yourself and convert every challenge into an opportunity.

A summary of

What Students Can Do To Improve Their Chance For Success At College

1. Identify goals, strengths and weaknesses
2. Identify campus supportive services to build on the strengths and work on overcoming weaknesses
3. Arrange for texts and required materials before classes meet.
4. Build a study plan, including when and how much you will need to study to meet your goals
5. Go to every class
6. Sit in the front row and keep your mind actively on your learning goals, and those of the instructor and the course.
7. Take good notes, and make it easier to identify question areas
8. Develop questions about course content to clarify your understanding.
9. Participate in class discussions, to try out your own understanding of concepts and to raise questions of importance.
10. Study with a partner, going over key points, clarifying areas of questions or misunderstanding, discussing points that might come up on exams.
11. Build a study plan for tests.
12. Don't miss quizzes or tests
13. Hand in assignments on time
14. Be neat and legible in your assignments
15. Use the campus supportive services all the way through the term, not just before important tests.

P.S. 111 FILMS & VIDEOS ANTICIPATED SHOW LIST

<u>Films/Videos</u>	<u>Title</u>	<u>Time</u>	<u>Day</u>	<u>Comments</u>
RI VHS	Rivers of Fire	30 min.	1a	Crucial
VHS 3619	Minerals & Rocks (Britannica)	16 min.	1b	Crucial
Film A-3-15 (34)	Rocks that Originate Underground (Britannica) We have it on video	23 min.	2b	Crucial
Film A-3-16 Ps40s	Rocks that form on the Earth=s Surface (Britannica)	16 min.	2c	Crucial
VHS 3717	The Rock Cycle (Britannica)	22 min.	2a	Crucial
VHS	Volcanoes: Understanding the hazards	21 min.	2d	Crucial
Film A-3-7 2985	Heartbeat of a Volcano (Britannica)	21 min.	3	Crucial
Film PS28s A-2-30	Work of Atmosphere (Britannica)	15 min.	3	
VHS W-27 SR8140	Weathering & Erosion (Scott Resources, Gould Media)	20 min.	3 or 7	Crucial
Film 19 A-2-11 Ps12s	Ground Water (Britannica)	15 min.	4	
VHS G5 XO3718	Ground Water (Britannica)	17 min.	4	Crucial
Film 48 A-2-31 Ps27s	Work of Rivers (Britannica)	15 min.	4	
VHS R2 X03697	Rivers: The Work of Running Water (Britannica)	17 min.	4	Crucial
Film A-2-10 Nu1778	Geological Work of Ice (Britannica)	15 min.	4 or 5	Crucial
VHS 4196	Evidence for The Ice Age (Britannica)	13 min.	4 or 5	Crucial
Film	Rise & Fall of the Great Lakes	18 min	5	Crucial
VHS	How the Ice Age made the Great Lakes (not too good)			
VHS EI XO3738	Earthquake - Earth Crust (Britannica)	22 min.	6	Crucial
Film Ps19s A-2-20	Mountain Building (Britannica)	15 min	6	Crucial
VHS8430	Faulting and Folding (Scott Resources)	17min		
VHS C5 XO3652	Continental Drift (Britannica)	21 min.	6	Crucial
VHS SR8140	Weathering & Erosion (Scott Resources, Gould Media)	20 min.	7	Crucial
VHS SR8180	Running Water Erosion, Deposition & Transposition (Scott Resources Gould Media)20 min.7	20 min.	7	
Film A-2-4	Earth in Motion (Britannica)	15 min.	8	
Film A-2-9	Exploring the Universe (Britannica)	15 min.	8	
	Expect to use only these last two on Midterm Exam day and only lecture thru Copernicus & Ellipses (so take home Lab on Ellipses can be given out)		8	
Film Ps23s A-2-27	Solar Family (Britannica)	15 min.	9 or 10	

Film 2-B-411	The Solar System (International Film Bureau)	25 min.	9	
Film A-2-18 Ps18s	The Moon (Britannica)	15 min.	9	
Film A-2-19	Moon: Motion & Phases (Hubbard, Astronomy 9101) (Sometimes omitted for review prior to Q. 3)	12 min.	9	Crucial
Film 2299	Eclipses of Sun & Moon (Britannica)	11 min.	10	
Film A-2-23	Powers of 10			
VHS	Powers of 10 (Has both old, do not use it, & New Version). Use New Version after fast-forwarding past the Emes biography part.	10 min.	10	Crucial
VHS	GOES 8 – parts		11	(Use w. Tracksat)
VHS 3584	Universe: Beyond the Solar System (Britannica)	17 min.	11 or 8	Crucial
Film PS3s	Atmospheric Pressure (Britannica)	15 min.	12	
PS33b	Inconstant Air (too old drop: use Air in Motion)	30 min.		
VHS	Skywatching PC101 (Purple Crayon Production)	40 min.	12	Crucial
VHS 3676	What Makes Weather (Britannica)	14 min.	13	Crucial
VHS 4195	Atmosphere in Motion (Britannica)	14 min.	12	Crucial
Film PS 2s	Atmosphere & Its Circulation (Britannica)	15 min.	13	
VHS	Climate Research (Spektrum Videhek)	32 min.	14	
VHS	Climate Weather & People (Hawkhill)	30 min.		
VHS	Tornadoes!! (Norman Beerger - Production) only first 20 minutes	Show 60 min.	13	
VHS WG1610	Hurricane (NOVA): use at least first 20-30 minutes	60 min	13	Crucial

VHS	Geology Tutor-V5 (Weather and Climate)	15-20min	12	
VHS (CL9557cv)	Clouds and What they mean	18min	13	Crucial
VHS N6642	Weather Fundamentals: Clouds (Schlessinger Science Club)	23min	13	Crucial
VHS N61217	Tornado (NOVA)	60min	14	Crucial

Required Reading List For PS111

Books

1. *Earth Science*, by Tarbuck & Lutgens, 10th Ed., Prentice Hall, 2003.

Optional Supplemental Materials

1. **GEODE: Earth Science CD-ROM:** This an excellent CD and is highly recommended (comes free with the textbook)
2. Study Guide
3. Golden Press Books: These are concise for a quick study:
Geology, Rhodes, or *Landforms*, Adams & Syckoff, (they overlap greatly) and *Weather*, Lehr, Burnett, & Zim.
 Plus, perhaps, *Rocks & Minerals*, Zim & Shaffer.

Required Internet Readings/Handouts:

1. "Characteristics of the Scientific Method", Bertrand Russell
2. "Classification of Minerals and Rocks"
3. "River Erosion Cycle Table"
4. "Earthquakes", U.S. Dept. of the Interior/U.S. Geological Survey
5. "Time Zones"
6. "Weather Satellite Terms"
7. "Weather Safety Information"
8. "Cloud Terms"

Physical Science 111 Laboratory Experiments

Below is a suggested list of laboratory study areas. Some (but not all) of these areas we expect to explore in this course. In most cases, a lab quiz will conclude each day's study. The list is not in the expected order that the lab activities will be preformed. (The Instructor will select the experiments and the order in which they will be performed).

Geology

1. Measurement:

You will be measuring quantities such as length, volume, mass, density of many objects and rocks, using SI and British units.

2. Minerals

You will be a scientific detective and solve the mystery of the mineral sample names. A must do lab! See the [sample](#) available on this website.

3. Rocks

You will be a scientific detective and solve the mystery of the rock sample names. A must do lab! See the [sample](#) available on this website

4. Growing Crystals from Solution

This has not worked well in the past

5. Geological Models

There are 8 models in the set. We will work with 2(or 4) at a time over two (or four) sessions to learn landform terminology.

A. Geological Models #1

See the [sample](#) on this website. There are 8 models in the set. Some instructors work with 2 at a time, others 4. In this lab students are working with models 1, 8, 4 & 6. They are examining **surface features**. Have accompanying booklets.

B. Geological Models #2

In this lab students are using models 2, 3, 5, & 7, and are examining **internal features**.

6. Determining the Epicenters of Earthquakes

Good but short, maybe use with an exam.

7. Geologic Time: Relative and Radiometric Dating.

This is a computer lab with a hands- on component.

8. Surface Features- Mapping I: Top this

Interpret topographic maps, which show landforms and approximate elevations above sea level. Using points of known elevation you will learn to draw contour lines and using a topographic map you will learn to construct a topographic profile.(activity)

9. Earth's internal properties: over and under

To construct and interpret maps of geologic cross sections in the subsurface.(activity

10. Latitude, Longitude, & Time Zones

Using globes, wall maps and world atlas books, you will examine aspects of the Earth's grid system. . Caution: in the index of world atlas books places are listed with their latitudes and longitudes

Astronomy

11. Ellipses and Kepler's Laws

This required take home lab is somewhat mathematical. A kit will be supplied to make and study ellipses.

12. Phases of the Moon

Fun! See [sample](#) on this website

Investigate how and why the Moon's appearance changes and determine the rising and setting times for each phase.

13. A Scale Model of the Solar System

A good take home lab for extra credit. The write up is available on this site. All extra credit is due the class before the final exam.

14. The Solar System: Sunballs

To estimate the diameter of the Sun(experiment

15. The Solar System: Tracking Mars:

To plot the orbit of Mars using the original data obtained by Tycho Brahe(activity in astronomy)

16. Skylab

Computer lab. See the [sample](#) on this website.

17. Internet Website Treasure Hunt

This is a hands-on computer lab examining sites on the Internet

Meteorology

18. Air and Atmospheric Pressure

This is a fun inquiry based lab with student teams presenting a large variety of demonstrations.

19. Solar Power:

To measure the sun's power output by comparison with the power of a 100-watt light bulb. To measure the amount of solar energy per minute that reaches the earth's surface, and from this estimate the sun's power output. (METEOROLOGY experiment)

20. How Scientists Forecast the Weather

See the [sample](#) on this website. Students learn to interpret weather maps, GOES and polar satellite images. Satellite images not included with lab. See Dr. Bart

21. Indoor Clouds

From the condensation of water droplets, you will illustrate the formation of clouds and will make tornadoes in bottles. You will, also, and study cloud naming and identification.

22. Chasing Hurricanes

See the [sample](#) on this website. Students graph latitude and longitude and predicting hurricane watches and hurricane warnings.

23. Map Reading

This has accompanying visual aids. Map printouts are available.

24. Latitude, Longitude, & Time Zones

Use globes, wall map and world atlas books. Caution: in the index of world atlas books places are listed with their latitudes and longitudes.

25. Weather Satellite Image Puzzles

Compliance with the Americans with Disabilities Act (ADA):

It is the policy of the school to make reasonable accommodations for qualified students with disabilities, in accordance with the Americans with Disabilities Act (ADA). If you need accommodations to complete your course requirements, you must notify the Director of Student Services. Procedures for documenting your disability and developing reasonable accommodations will be provided upon request.

- **Note:** Students needing reasonable accommodation due to a verifiable disability should notify me within the first two weeks of class.

PLEASE NOTE: THIS SYLLABUS IS SUBJECT TO CHANGE AT THE DISCRETION OF THE INSTRUCTOR. ADDITIONAL INFORMATION ON ASSIGNMENTS WILL BE GIVEN IN A TIMELY FASHION THROUGHOUT THE COURSE.

Course Timeline (All dates and chapters are tentative, and subject to change. The instructor will give adequate time when a change occurs)

