### PHSC 1012K - Physical Science II Spring 2018

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| **Instructor:  Dr. Arun Saha**         **Office:** BCBB 206  **Class Period: TR(9:00-10:15am), F(9:00 – 10:50am)**  Office Hours **MW [8:30-10am &2:30-3:30pm], T[1:05-3pm],R[2-3pm],F[11-1pm]** | **Voice:  2294304816**  **e-mail:arun.saha@asurams.edu** |

**Objectives:**

Students are expected to:

1. Develop deep understanding and hands-on experience of scientific processes

2. Possess competence in basic concepts related to physical science that covers motions, sounds, thermal, electricity, magnetism and nuclear.

3. Develop matured reasoning skill

4. Use technology-assisted learning for life time learning

Best illustrated chapters. Please refer to the Opens tax textbooks:

<https://open.umn.edu/opentextbooks/BookDetail.aspx?bookId=22>

<https://ocw.mit.edu/courses/chemistry/5-12-organic-chemistry-i-spring-2005/>

<https://openstax.org/details/chemistry>

https://cnx.org/contents/RTmuIxzM@8.3:uXg0kUa-@4/Introduction

**Contents:**

1. Atoms and periodic properties

Different fields of study contributed to the development of a model of the atom.

Please refer to:

<https://www.youtube.com/watch?v=Gy9HR65DpYQ>

<https://www.youtube.com/watch?v=q--2WP8wXtk>

<https://www.youtube.com/watch?v=ywqg9PorTAw>

<https://www.youtube.com/watch?v=IFKnq9QM6_A>

<https://www.youtube.com/watch?v=fLSfgNxoVGk>

2.  Chemical bonds

Electron structure will explain how and why atoms join together in certain numbers.

<https://www.youtube.com/watch?v=7DjsD7Hcd9U>

<https://www.youtube.com/watch?v=VSc491HLzDo>

<https://www.youtube.com/watch?v=OTgpN62ou24>

<https://www.youtube.com/watch?v=_M9khs87xQ8>

<https://www.youtube.com/watch?v=KjoQHqgzda8>

<https://www.youtube.com/watch?v=OTgpN62ou24>

3. chemical reactions

Chemical symbols, formulas, and equations can be used to concisely represent elements, compounds, and what happens in a chemical reaction

<https://www.youtube.com/watch?v=aMU1RaRulSo>

<https://www.youtube.com/watch?v=5rtJdjas-mY>

<https://www.youtube.com/watch?v=IZ1tKxsqV74>

<https://www.youtube.com/watch?v=yA3TZJ2em6g>

<https://www.youtube.com/watch?v=jy6F0Lbvjm8>

4. water and soluations

Water and solutions of water have unique properties

<https://www.youtube.com/watch?v=AN4KifV12DA>

<https://www.youtube.com/watch?v=9h2f1Bjr0p4>

<https://www.youtube.com/watch?v=iWOnCH8m5ug>

<https://www.youtube.com/watch?v=AOqH5ktwoDE>

<https://www.youtube.com/watch?v=XC1RxloV0Mo>

5.Organic compounds

The nature of the carbon atom allows for a great variety of organic variety of organic compounds, many of which play vital roles in living.

<https://www.youtube.com/watch?v=MmWZ8vGz9zQ>

<https://www.youtube.com/watch?v=zUN2nIVHiyU>

<https://www.youtube.com/watch?v=cMTRB1K6Scg>

<https://www.youtube.com/watch?v=gP8H7xj97pA>

<https://www.youtube.com/watch?v=0WAV47hsCpY>

<https://www.youtube.com/watch?v=OOcFFJ-s0p4>

<https://www.youtube.com/watch?v=7fv8GETEOu8>

https://www.youtube.com/watch?v=lC57cJzM8OA

6. the universe

The night sky is filled with billions of stars, and the Sun is an ordinary star with an average brightness.

<https://www.youtube.com/watch?v=mO3Q4bRQZ3k>

<https://www.youtube.com/watch?v=lkEvS4QUFeY>

<https://www.youtube.com/watch?v=XSVjaklLf24>

<https://www.youtube.com/watch?v=Qd6nLM2QlWw>

https://www.youtube.com/watch?v=jpMyjPJ9HFg

7.the solar system

The solar system is composed of the Sun and orbiting planets, dwarf planets, and small solar system bodies.

<https://www.youtube.com/watch?v=Qd6nLM2QlWw>

<https://www.youtube.com/watch?v=jpMyjPJ9HFg>

<https://www.youtube.com/watch?v=95NCtnMRuBs>

<https://www.youtube.com/watch?v=B-b4XvuQo1Y>

<https://www.youtube.com/watch?v=TKM0P3XlMNA>

<https://www.youtube.com/watch?v=0ytyMKa8aps>

8.earth in space

The way the Earth moves in space is used to define time and describe location on the surface, and causes other recurrent phenomena such as seasons.

<https://www.youtube.com/watch?v=n4IhCSMkADc>

<https://www.youtube.com/watch?v=EPyl1LgNtoQ>

<https://www.youtube.com/watch?v=Un5SEJ8MyPc>

<https://www.youtube.com/watch?v=mve7hRaoH8U>

<https://www.youtube.com/watch?v=6v2L2UGZJAM>

***For any missed work, if you have a right excuse, you need contact the instructor right after you get back and bring the written document with you. All those missed work must be made up in the following two weeks (the two week right after the date on which you are absent, just in case you are sick for more than one week). After these particular 2-week, even if you have a legitimate reason, you would lose the chance to make up for your missed work!***

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| **Chapter** | **Topics** | **Problems set** |
| 1 | Atoms and periodic properties |  |
| 2 | Chemical bonds | . |
| 3 | Chemical reactions | . |
| 4 | Water and solutions | . |
| 5 | Organic chemistry | . |
| 6 | Nuclear reactions | . |
| 14 | The Universe | . |
| 15 | The Solar System | . |
| 16 | The Earth in Space | . |

**Grading System**:

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| **Grade Distribution**   |  |  | | --- | --- | |  |  | | Tests | 40 % | | HW | 15% | | Lab | 20% | | Final | 20% | | attendance | 5% | | Total | 100% | | **Letter Grade**s   |  |  | | --- | --- | | **A** | 90 & up | | **B** | 80-89 | | **C** | 70-79 | | **D** | 60-69 | | **F** | 59 & below | |  |  | |  |

**Policy:**   
A. **Attendance**

1. Class attendance is compulsory.

You can have up to 4 excused or non-excused absences for the entire semester according the university policy, unless you have extreme circumstance.

For each extra absence (excused or unexcused) after the permitted number, student will suffer a deduction of 2% of total overall points. For example, for a 3 credit hour course:

For 4 absences, deduction is 0%

For 5 absences, deduction is 1%

For 6 absences, deduction is 2%

For 7 absences, deduction is 3%

For 8 absences, deduction is 4%

For 9 absences, deduction is 5% (equivalent to one letter grade down)

2. Punctuation.   
 **Late**: 5-15 minutes late to class is considered as late.  
 **Absence:** 15 minutes and more late to class.

Three late’s count as one absence.

You forfeit your right to take a test, quiz, lab, or other in-class assignment if you're  more than 15 minutes late.

B. Classroom behaviors

0. **Turn off Cell Phone or on vibrate if you expect an emergency call.**

1. You must own your own scientific calculator, no sharing of calculator is allowed.

2. Use your own calculator, **No sharing** of calculator during test or quiz session is allowed. You are not allowed to use calculator on the cellphone, which is considered as a potential cheating device.

3. No child is allowed in the classroom

4. **No eating or drinking** is allowed **in the Lab.**

5. No chatting during lecture, else you will be asked to leave the classroom.

6. No communication whatsoever is tolerated during a test or quiz. You will be disqualified from taking the test or quiz if you are caught doing so. Disqualification means you get an instant "0" for the test or quiz.

8. **Do ask questions in class**.

C. Work & Grades related policy

1. It is recommended that you do your work in pencil such that you can make correction easily. Always keep your pencils sharp.
2. You are expected to spend minimal 2 hours for every lecture hour spent in class.  Check the instructor's website to update your homework assignments
3. Some of the lab sessions will be used for problem solving sessions.
4. Grade-drop policy.

*One lowest grade of the tests will be dropped from the computation of  "final" grade average.* The dropping policy will not be applied to the mid-term grade.

5. No late assignments will be accepted. Each assignment must be handed-in in the first 10 minute of a class unless otherwise announced.  If you forget your homework, you will have to bear the consequence of your action. Be prepared before you come to class.

6. Make-up Policy. Because of the grade dropping policy, no make-up quiz, homework, and lab assignments will be given unless you have extraordinarily serious events such as a hospital stay of two weeks. The student must coordinate with the instructor, at the discretion of the instructor about the makeup. You may make up a missed test if you have legitimate excuses such as sickness, with proof of evidence. You must make up any test, quiz, or assignment missed within one week after returning to campus.  An automatically zero will be applied if an assignment is not made-up on time.

7. The consequence of caught cheating is an automatic “F” and your action will be reported to the university authority.  **Communication in any forms during a test will be considered as cheating.**

8. You are encouraged to discuss and share ideas with your classmates; however, **Plagiarism will not be tolerated.** Works that shows the same mistake at the same manners such as identical number of steps to solve a problem with identical symbols, signs, and punctuation marks, and identical styles and formats will be considered as plagiarism. If so, you will receive "0" credit.  Submitting printed copy of Web pages as your own work is also considered as plagiarism. You may only submit them as references or attachment only.

9.  Depends on the average background of students of the year, we may or may not cover chapters listed above in one semester. And the order of coverage may be different from the sequence listed in homework section above. The listed sequence is for your reference only.  Please pay attention to announcement of changes or visit the course site as often as possible to keep yourself update.