

# Syllabus for PHY 102, *Atoms to Galaxies*, Section 13-14

## Course Details

Atoms to Galaxies, PHY 102, Sections 13 & 14, Spring 2017

- Lectures: TuTh 11:00AM - 12:15PM in MLT 208
- Laboratory: TUE-FRI 9:00am – 4:00pm in MLT 202 & 204

## Instructor

Dr. Uttam Manna

Office: MTL 313C

Office Hours: Tu 4:00-5:00pm, Th 12:15-1:15pm or by appointment

**Email:** [umanna@ilstu.edu](mailto:umanna@ilstu.edu) (Preferred method of contact)

Phone: 309-438-2037

## Textbook (Recommended but NOT Required)

- Conceptual Physical Science, 5th Edition, Hewitt, Suchocki & Hewitt, ©2012, Pearson, ISBN13: 9780321753342

## Lab Manual (Required)

- Hands on Activities for Physics 102 by Ansher & Goderya, ISBN 9781609045265

## Clicker (Required)

- Publisher: TURNING TECHNOLOGIES, ISBN 9781934931783
- Clickers are based on TurningPoint Cloud technology used as audience response device.
- Clickers will allow to poll face-to-face class in real time, display the results, engage you in your learning, and get a sense of level of understanding of the course materials.
- Clicker responses will be recorded and incorporated into grades. **100% credit for correct answers and 50% credit for incorrect answers.**
- To make your classroom click response count, please register your unique clicker ID with ReggieNet and bring it to *every* class with you.

## Instructions for registering your Clicker

- If you created a working TurningPoint account last semester, you should NOT have to re-register this semester if you are using the same clicker. (Once successfully registered, the account works for any ReggieNet course for as long as the subscription lasts.)
- For details on how to register your new clicker for the classroom, please visit <http://ctl.illinoisstate.edu/technology/clickers/students/>
- Each of you should have your own unique “**clicker and license**”, which can be purchased in either ISU TurningPoint online store (cheaper option) or in the bookstore.

- To order online, log on to <https://reggienet.illinoisstate.edu> and visit “PHY 102 0013 SP2017 - Atoms To Galaxies” course website, and click “TurningPoint Cloud” menu located at the bottom left menu (above Help menu).
- Clicking the “TurningPoint Cloud” option would direct you to TurningPoint Technology website to create an account and purchase a bundle of clicker and license online (Keep all the papers and packaging so that they can be sent as a proof of purchase for rebate!).
- Whether purchasing online or in the bookstore, you can get rebates by redeeming codes at <https://rebates.turningtechnologies.com> where you have to fill out an online form and receive instructions on how to mail in the rebate materials.
- **Rebate Codes:** RF LCD 4 year bundles (20.99 rebate) → Risu20; 4 year license (\$37.00 rebate) → Risu37; 1 year license (\$20.99 rebate) → Risu20

## ReggieNet

- ReggieNet is an online course management tool licensed by ISU.
- ReggieNet will be used to upload syllabus and other course materials, set-up emails, create assignments, grading, announcements, etc. – hence ReggieNet is going to be an essential component of the course. To get started with ReggieNet, please visit <http://ctl.illinoisstate.edu/technology/reggienet/students/>

## Details of the Course Components

### Lectures

- The lecture will be focused on learning physics concepts that can be used to solve daily life problems.
- Almost every class will start with a couple of daily life examples which requires understanding of some physical principles; subsequently the physical principles will be discussed in greater detail.
- I will use combinations of white-board, power point, movies, pictures, demonstrations, online simulation tools, *etc.* to explain the physical principles that will help you to develop a qualitative understanding of the topic under discussion.
- I highly encourage you to participate in the class-room during lectures.
- Raise your hand if you have any questions and concerns without any hesitation at any time during the lecture.

### Homework

- Typically, homework will be assigned on weekly basis on ReggieNet.
- There will be approximately **9 homework assigned** during the semester; **the lowest homework scores will be dropped** to account for any unforeseen absence.
- You will have a week to complete your homework. For example, homework assigned on Tuesday will be due on Tuesday the following week.
- **You are allowed 3 attempts on each assignment;** No late assignments will be accepted.
- Your homework will be graded automatically on ReggieNet and you will know your score and the answer keys immediately after submission.
- Make sure the grades are consistent with your performance by checking the gradebook periodically in ReggieNet.

### Attendance/Participation

- Regular attendance and active participation are expected during every class.
- Raise your hand if you have any questions and concerns without any hesitation at any time during the lecture.
- Clickers will help you stay more focused on the lecture material and participate in the class room activities.
- Note that correct answers to clicker questions will receive full credit for the question and incorrect answers will receive half- credit.
- **The use of cell phones (talking, texting, etc.) during class is not permitted.** Cell phones must remain in your pocket or bag, and must be on silent during class.

### Examinations

- There will be **three class exams, and the final exam; total four exams.**
- The **lowest score out of the three class exams** will be dropped to account for any unforeseen absences.
- The **final exam** will be **comprehensive.**
- **All the exams including the final** will be given using OPSCAN forms, and are *open-notes and open-book.*
- You may use a calculator on the exams, but no other devices (phones, laptops, ipods, etc.) will be allowed during the exams.

### Laboratory

- There will be **10 lab activities** throughout the semester in computer lab rooms MLT 202 and 204 (see page-5 for schedule).
- The **lowest two lab score will be dropped** to account for any unforeseen absences.
- You must bring your lab manual with you in order to complete the lab, and **get it stamped as a proof that you have indeed completed the lab.**
- You may do the activity at any time during the week when the lab is open (Tuesday through Friday 9am-4pm).
- Each activity must be completed by the time the lab closes on Friday afternoon, and your worksheet must be turned in when you leave the lab.
- Due to high volume of students, I strongly encourage you to complete your lab work early in the week so that you don't run out of time.

### Grading

The final grade will be weighted as follows:

- Homework 25%
- Clicker Response 5%
- Lab 20%
- Class Exams 30%
- Final Exam 20%

**Final letter grades will be based on the following (subject to change):**

- **90 – 100% A**
- **80 – 89.99% B**
- **70 – 79.99% C**
- **60 – 69.99% D**
- **< 60% F**

## Free Tutoring

### **Free Tutoring Available for this Course!**

The Julia N. Visor Academic Center provides *free* weekly tutoring sessions for this course and many other general education courses.

To sign up, stop by the Julia N. Visor Center or call (309) 438-7100.

**Julia N. Visor Academic Center  
(309) 438-7100**

Vrooman 012 (between Manchester and Hewett Residence Halls)

Mon-Thurs 8:00 am-9:00 pm, Fri 8:00 am-4:30 pm, Sun 4:00 pm-8:00 pm

<http://www.UniversityCollege.IllinoisState.edu/tutoring>

A representative from the Julia N. Visor Academic Center will be here at the class room (MTL 208) on January, 19 at 11:00 am to make an announcement.

## Academic Integrity and Code of Conduct

- Collaboration, exchanging ideas, open discussion on course materials are allowed; in fact, encouraged.
- However, each student must do their own homework, labs, and exam solutions independently.
- Copying from others, and any other form of cheating, are against academic honesty and integrity, and violates ISU code of conduct. For details see <http://deanofstudents.illinoisstate.edu/conflict/conduct/code/academic.php> or see the full ISU Code of Student Conduct document <http://deanofstudents.illinoisstate.edu/downloads/CodeOfStudentConduct-Revised5.12.pdf> for the ISU policy on academic dishonesty
- Students are expected to behave in a manner consistent with being in a professional environment.
- Open discussion and disagreement are encouraged in a respectful manner.
- Open hostility, rudeness, and incivility are discouraged and will result in appropriate action.
- Students acting in a disruptive or uncivil manner may be dismissed from the class for the remainder of the class period. If necessary, referrals may also be made to Community Rights & Responsibilities for violations of the Code of Student Conduct.

## Students with Disabilities

- Any student needing to arrange a reasonable accommodation for a documented disability should contact Student Access and Accommodation Services at 350 Fell Hall, 309-438-5853, <http://studentaccess.illinoisstate.edu/>

## Tentative Course Schedule (Subject to Change)

The course content can be divided into four sub-sections

**I. Mechanics** (Week 1 to Week 6): Motion, Newton's laws, Energy and Momentum, Gravity & Projectile motion

**II. Atoms** (Week 6 to Week 7): Structures of Atoms; From Rutherford to Bohr's models

**III. Electricity & Magnetism** (Week 8 to Week 13) Static Current, Electricity, Electric Circuits, Magnetism, Electromagnetic Induction

**III. Waves & Light** (Week 14 to Week 16): Waves, Sound, Electromagnetic Waves, Light

A tentative schedule for the course and exams are as follows:

	<b>Tuesday 11:00 am to 12:15 pm</b>	<b>Thursday 11:00 am to 12:15 pm</b>	<b>Laboratory</b>
Week 1 1/17, 1/19	Introduction, Why we do science?	Math Skills	No Lab
Week 2 1/24, 1/26	Birth of Mechanics, Force, Mass, Inertia	Speed, Velocity, Acceleration	No Lab
Week 3 1/31, 2/2	Newton's laws -I	Newton's laws-II	A2-GA - Graphical Analysis
Week 4 2/7, 2/9	Momentum	Work and Energy	A5-CI - Computer Interface
Week 5 2/14, 2/16	Projectile Motion	<b>REVIEW</b>	A3-FF - Free Fall
Week 6 2/21, 2/23	<b>EXAM-I</b>	Atoms-I	No Lab
Week 7 2/28, 3/2	Atoms-II	Static Current	A4-PM - Projectile Motion
Week 8 3/7, 3/9	Electricity	Electric Circuits-I	A6-NSL - Newton's Second Law
Week 9 3/14, 3/16	No Class – Spring Break	No Class – Spring Break	No Lab – Spring Break
Week 10 3/21, 3/23	Electric Circuits-II	<b>REVIEW</b>	A7-CE - Conservation of Energy
Week 11 3/28, 3/30	<b>EXAM-II</b>	Magnetism-I	No Lab
Week 12 4/4, 4/6	Magnetism-II	Electromagnetic Induction- Ampere's law	B3-CLE - Coulomb's Law of Electrostatics
Week 13 4/11, 4/13	Electromagnetic Induction-Faraday's law	<b>REVIEW</b>	B4-EOL - Electricity and Ohm's Law
Week 14 4/18, 4/20	<b>EXAM-III</b>	Waves	B2-WNL - Wave Nature of Light
Week 15 4/25, 4/27	Sound	Light	D1-LFA - Light From Atoms
Week 16 5/2, 5/4	Electromagnetic Waves	<b>REVIEW</b>	No Lab
Week 17 5/8 – 5/12	<b>EXAM-IV, TBA</b>		No Lab – Final Exam