Class Schedule - Summer 2017

Physics

Physics
Head of Department: Dale Van Harlingen
Department Office: 209 Loomis Laboratory of Physics, 1110 West Green, Urbana
Phone: 333-3761
www.physics.uiuc.edu

PHYS 101  **College Physics: Mech & Heat**  credit: 5 hours.
Newton's Laws, work and energy, rotational motion, fluids, thermodynamics, and waves. A noncalculus-based approach for majors in the life sciences, preprofessional health programs, agriculture, and veterinary medicine. Credit is not given for both PHYS 101 and either PHYS 211 or PHYS 213. Prerequisite: Trigonometry.

For students in the life sciences, pre-professional health programs, agriculture and veterinary medicine. Exams are given in the evening (during fall and spring semesters). Register for a lecture (A) section, a discussion (D) section and a laboratory (L) section.

This course satisfies the General Education Criteria for a:
Nat Sci & Tech - Phys Sciences
Quantitative Reasoning II

<table>
<thead>
<tr>
<th>CRN</th>
<th>Type</th>
<th>Section</th>
<th>Time</th>
<th>Days</th>
<th>Location</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>30232</td>
<td>Lecture</td>
<td>A</td>
<td>08:00 AM - 08:50 AM</td>
<td>MTWR</td>
<td>141 - Loomis Laboratory</td>
<td>Shoaf, C</td>
</tr>
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</table>

Nat Sci & Tech - Phys Sciences, and Quantitative Reasoning II course.
Meets 12-Jun-17 - 03-Aug-17.

| 36480 | Discussion/Recitation | D0      | 10:00 AM - 11:50 AM| TR   | 147 - Loomis Laboratory   | Fliss, J   |

Nat Sci & Tech - Phys Sciences, and Quantitative Reasoning II course.
Meets 12-Jun-17 - 03-Aug-17.

| 30233 | Discussion/Recitation | D1      | 12:00 PM - 01:50 PM| TR   | 147 - Loomis Laboratory   | Lam, A     |

Nat Sci & Tech - Phys Sciences, and Quantitative Reasoning II course.
Meets 12-Jun-17 - 03-Aug-17.

| 30236 | Laboratory           | L1      | 09:00 AM - 11:50 AM| MW   | 234 - Loomis Laboratory   | Rito, T    |

Nat Sci & Tech - Phys Sciences, and Quantitative Reasoning II course.
Meets 12-Jun-17 - 03-Aug-17.

| 30237 | Laboratory           | L2      | 12:00 PM - 02:50 PM| MW   | 234 - Loomis Laboratory   | Prather, B |

Nat Sci & Tech - Phys Sciences, and Quantitative Reasoning II course.
Meets 12-Jun-17 - 03-Aug-17.

PHYS 102  **College Physics: E&M & Modern**  credit: 5 hours.
Electric forces and fields, electric potential, electric circuits, magnetic forces and fields, geometrical optics, relativity, and modern physics. A noncalculus-based approach for majors in the life sciences, preprofessional health programs, agriculture, and veterinary medicine. Credit is not given for both PHYS 102 and either PHYS 212 or PHYS 214. Prerequisite: PHYS 101.

For students in the life sciences, pre-professional health programs, agriculture and veterinary medicine. Exams are given in the evening (during fall and spring semesters). Register for a lecture (A) section, a discussion (D) section and a laboratory (L) section.

This course satisfies the General Education Criteria for a:
Nat Sci & Tech - Phys Sciences
Quantitative Reasoning II

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<tr>
<th>CRN</th>
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<tbody>
<tr>
<td>30239</td>
<td>Lecture</td>
<td>A</td>
<td>08:00 AM - 08:50 AM</td>
<td>MTWR</td>
<td>151 - Loomis Laboratory</td>
<td>Carrubba, J</td>
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Nat Sci & Tech - Phys Sciences, and Quantitative Reasoning II course.
Meets 12-Jun-17 - 03-Aug-17.

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<tr>
<th>CRN</th>
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<th>Days</th>
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<tr>
<td>39122</td>
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<td>10:00 AM - 11:50 AM</td>
<td>MW</td>
<td>147 - Loomis Laboratory</td>
<td>Villalonga Correa, B</td>
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Nat Sci & Tech - Phys Sciences, and Quantitative Reasoning II course.
Meets 12-Jun-17 - 03-Aug-17.

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<tr>
<th>CRN</th>
<th>Type</th>
<th>Section</th>
<th>Time</th>
<th>Days</th>
<th>Location</th>
<th>Instructor</th>
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<tbody>
<tr>
<td>30246</td>
<td>Discussion/Recitation</td>
<td>D1</td>
<td>12:00 PM - 01:50 PM</td>
<td>MW</td>
<td>147 - Loomis Laboratory</td>
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Nat Sci & Tech - Phys Sciences, and Quantitative Reasoning II course.
Meets 12-Jun-17 - 03-Aug-17.

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<th>CRN</th>
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<th>Days</th>
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<td>30249</td>
<td>Laboratory</td>
<td>L1</td>
<td>09:00 AM - 11:50 AM</td>
<td>TR</td>
<td>258 - Loomis Laboratory</td>
<td>Gloudemans, J</td>
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Nat Sci & Tech - Phys Sciences, and Quantitative Reasoning II course.
Meets 12-Jun-17 - 03-Aug-17.

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<tr>
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<th>Days</th>
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<th>Instructor</th>
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<tr>
<td>30250</td>
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<td>TR</td>
<td>258 - Loomis Laboratory</td>
<td>Zhang, S</td>
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</table>

Nat Sci & Tech - Phys Sciences, and Quantitative Reasoning II course.
Meets 12-Jun-17 - 03-Aug-17.

PHYS 199  **Undergraduate Open Seminar**  credit: 0 TO 5 hours.
Approved for letter and S/U grading. May be repeated.

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<tr>
<td>10145</td>
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Instructor Approval Required
INDEPENDENT STUDY. To register for independent study under PHYS 199, use the PHYS 199 CRN (available from the departmental undergraduate records office) specific to the instructor with whom you have arranged to work. (You cannot register under the general CRN 10145.)

PHYS 211  **University Physics: Mechanics**  credit: 4 hours.
Newton's Laws, work and energy, static properties and fluids, oscillations, transverse waves, systems of particles, and rotations. A calculus-based approach for majors in engineering, mathematics, physics and chemistry. Credit is not given for both PHYS 211 and PHYS 101. Prerequisite: Credit or concurrent registration in MATH 231.

For students in engineering, mathematics, physics and chemistry. Exams are given in the evening (during fall and spring semesters). Register for a lecture (A) section, a discussion (D) section and a laboratory (L) section. Engineering students must obtain a dean's approval to drop this course after the second week of instruction.

This course satisfies the General Education Criteria for a:
Nat Sci & Tech - Phys Sciences
Quantitative Reasoning II

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<th>Location</th>
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<td>30254</td>
<td>Lecture</td>
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<td>151 - Loomis Laboratory</td>
<td>Rosenblatt, R</td>
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<td>39124</td>
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<td>D0</td>
<td>08:00 AM - 09:50 AM</td>
<td>TR</td>
<td>143 - Loomis Laboratory</td>
<td>Hegde, S</td>
</tr>
<tr>
<td>30256</td>
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<td>D1</td>
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<td>TR</td>
<td>143 - Loomis Laboratory</td>
<td>Sheikh, M</td>
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<td>30260</td>
<td>Laboratory</td>
<td>L1</td>
<td>08:00 AM - 09:50 AM</td>
<td>MW</td>
<td>264 - Loomis Laboratory</td>
<td>Inafuku, D</td>
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<tr>
<td>30262</td>
<td>Laboratory</td>
<td>L2</td>
<td>12:00 PM - 01:50 PM</td>
<td>MW</td>
<td>264 - Loomis Laboratory</td>
<td>Song, X</td>
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</tbody>
</table>

PHYS 212  University Physics: Elec & Mag  credit: 4 hours.

Coulomb's Law, electric fields, Gauss' Law, electric potential, capacitance, circuits, magnetic forces and fields, Ampere's law, induction, electromagnetic waves, polarization, and geometrical optics. A calculus-based approach for majors in engineering, mathematics, physics, and chemistry. Credit is not given for both PHYS 212 and PHYS 102. Prerequisite: PHYS 211; credit or concurrent registration in MATH 241.

For students in engineering, mathematics, physics and chemistry. Exams are given in the evening (during fall and spring semesters). Register for a lecture (A) section, a discussion (D) section and a laboratory (L) section. Engineering students must obtain a dean's approval to drop this course after the second week of instruction.

This course satisfies the General Education Criteria for a:
Nat Sci & Tech - Phys Sciences
Quantitative Reasoning II

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<th>CRN</th>
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<th>Days</th>
<th>Location</th>
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</table>
### CRN 30264
**Lecture**
- **Section**: A
- **Time**: 11:00 AM - 11:50 AM
- **Days**: MTWR
- **Location**: 151 - Loomis Laboratory
- **Instructor**: Chamberlain, R

**Physics, Summer 2017**

- Nat Sci & Tech - Phys Sciences, and Quantitative Reasoning II course.
- Meets 12-Jun-17 - 03-Aug-17.

### CRN 36519
**Discussion/Recitation**
- **Section**: D0
- **Time**: 08:00 AM - 09:50 AM
- **Days**: MW
- **Location**: 143 - Loomis Laboratory
- **Instructor**: Ascencio, C

**Physics, Summer 2017**

- Nat Sci & Tech - Phys Sciences, and Quantitative Reasoning II course.
- Meets 12-Jun-17 - 03-Aug-17.

### CRN 30266
**Discussion/Recitation**
- **Section**: D1
- **Time**: 12:00 PM - 01:50 PM
- **Days**: MW
- **Location**: 143 - Loomis Laboratory
- **Instructor**: Ferrante, A

**Physics, Summer 2017**

- Nat Sci & Tech - Phys Sciences, and Quantitative Reasoning II course.
- Meets 12-Jun-17 - 03-Aug-17.

### CRN 30268
**Discussion/Recitation**
- **Section**: D2
- **Time**: 02:00 PM - 03:50 PM
- **Days**: MW
- **Location**: 143 - Loomis Laboratory
- **Instructor**: Long, A

**Physics, Summer 2017**

- Nat Sci & Tech - Phys Sciences, and Quantitative Reasoning II course.
- Meets 12-Jun-17 - 03-Aug-17.

### CRN 30272
**Laboratory**
- **Section**: L1
- **Time**: 08:00 AM - 09:50 AM
- **Days**: TR
- **Location**: 262 - Loomis Laboratory
- **Instructor**: Petersen, E

**Physics, Summer 2017**

- Nat Sci & Tech - Phys Sciences, and Quantitative Reasoning II course.
- Meets 12-Jun-17 - 03-Aug-17.

### CRN 30273
**Laboratory**
- **Section**: L2
- **Time**: 12:00 PM - 01:50 PM
- **Days**: TR
- **Location**: 262 - Loomis Laboratory
- **Instructor**: Salazar-Lazaro, C

**Physics, Summer 2017**

- Nat Sci & Tech - Phys Sciences, and Quantitative Reasoning II course.
- Meets 12-Jun-17 - 03-Aug-17.

### CRN 30274
**Laboratory**
- **Section**: L3
- **Time**: 02:00 PM - 03:50 PM
- **Days**: TR
- **Location**: 262 - Loomis Laboratory
- **Instructor**: Passias, V

**Physics, Summer 2017**

- Nat Sci & Tech - Phys Sciences, and Quantitative Reasoning II course.
- Meets 12-Jun-17 - 03-Aug-17.

**PHYS 213  Univ Physics: Thermal Physics  credit: 2 hours.**

First and second laws of thermodynamics including kinetic theory of gases, heat capacity, heat engines, introduction to entropy and statistical mechanics, and introduction to application of free energy and Boltzmann factor. A calculus-based approach for majors in engineering, mathematics, physics and chemistry. Credit is not given for both PHYS 213 and PHYS 101. Prerequisite: PHYS 211; credit or concurrent registration in MATH 241.

For students in engineering, mathematics, physics and chemistry. Exams are given in the evening (during fall and spring semesters). PHYS 213 meets only during part of the term; check the meeting dates. Register for a lecture (A) section, a discussion (D) section and a laboratory (L) section. Engineering students must obtain a dean's approval to drop this course after the second week of instruction.

This course satisfies the General Education Criteria for a:
- Nat Sci & Tech - Phys Sciences
- Quantitative Reasoning II
PHYS 214  Univ Physics: Quantum Physics  credit: 2 hours.
Interference and diffraction, photons and matter waves, the Bohr atom, uncertainty principle, and wave mechanics. A calculus-based course for majors in engineering, mathematics, physics, and chemistry. Credit is not given for both PHYS 214 and PHYS 102. Prerequisite: PHYS 212.
For students in engineering, mathematics, physics and chemistry. Exams are given in the evening (during fall and spring semesters). PHYS 214 meets only during part of the term; check the meeting dates. Register for a lecture (A) section, a discussion (D) section and a laboratory (L) section. Engineering students must obtain a dean's approval to drop this course after the second week of instruction.
This course satisfies the General Education Criteria for a:
Nat Sci & Tech - Phys Sciences
Quantitative Reasoning II

30283 Discussion/Recitation D0 08:00 AM - 09:50 AM MW 139 - Loomis Laboratory Ceyhan, F


30284 Discussion/Recitation D1 10:00 AM - 11:50 AM MW 139 - Loomis Laboratory Levy, R


30302 Discussion/Recitation D2 02:00 PM - 03:50 PM MW 139 - Loomis Laboratory Bandak, D


30303 Laboratory L1 08:00 AM - 09:50 AM TR 236 - Loomis Laboratory Yeo, L


30304 Laboratory L2 10:00 AM - 11:50 AM TR 236 - Loomis Laboratory Lin, S


30305 Laboratory L3 02:00 PM - 03:50 PM TR 236 - Loomis Laboratory Mattson, G


PHYS 225  **Relativity & Math Applications**  credit: 2 hours.

Theory of Special Relativity, with applications to kinematics and dynamics. Key mathematical methods as they apply to aspects of electromagnetic theory and classical mechanics, including vector analysis, series expansions, matrices, Fourier analysis, partial differentiation, three-dimensional calculus, and simple differential equations. Prerequisite: Credit or concurrent registration in PHYS 212.

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<th>Time</th>
<th>Days</th>
<th>Location</th>
<th>Instructor</th>
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<tbody>
<tr>
<td>36582</td>
<td>Lecture</td>
<td>A</td>
<td>10:00 AM - 10:50 AM</td>
<td>MR</td>
<td>222 - Loomis Laboratory</td>
<td>Gollin, G</td>
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</table>

Meets 12-Jun-17 - 03-Aug-17.

37447 Discussion/Recitation D1 01:00 PM - 02:50 PM MR 222 - Loomis Laboratory Gariepy, A

Meets 12-Jun-17 - 03-Aug-17.
PHYS 298  **Freshmen/Sophomore Special Topics in Physics**  credit: 0 TO 4 hours.
Topical offerings of technical interest, skills, and knowledge in physics, and its practice, intended to augment the existing curriculum at the introductory level. Approved for Letter and S/U grading. May be repeated in separate terms up to 12 credit hours if topics vary. Prerequisite: See Class Schedule or departmental course information for topics and prerequisites. For students with freshman or sophomore standing.

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<tr>
<th>CRN</th>
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<tbody>
<tr>
<td>39258</td>
<td>Lecture</td>
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<td>03:00 PM - 04:50 PM</td>
<td>MR</td>
<td>-</td>
<td>Gollin, G</td>
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</table>

Credit Hours: 2 hours
Meets 12-Jun-17 - 03-Aug-17.
You will learn to do remarkable things. By the end of the first week you will calculate the trajectory of a relativistic starship and confirm an insight of Ramanujan, the "Man Who Knew Infinity." A week after that you will generate diagrams of spacetime curvature around black holes. You will determine the slingshot trajectory for a tour of the gas giants and calculate pi using simulated toothpicks. There will be chaos, and fractal geometry, and pattern recognition in noisy environments. You will learn that a Python is not just a snake, nor a Spyder just an arachnid. And you will be pioneers: you are going to help us change the way we teach undergraduate physics at the University of Illinois.

PHYS 403  **Modern Experimental Physics**  credit: 4 OR 5 hours.
Techniques and experiments in the physics of atoms, atomic nuclei, molecules, the solid state, and other areas of modern physical research. 5 undergraduate hours. 4 graduate hours. Prerequisite: Credit or concurrent registration in PHYS 486.

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<th>Instructor</th>
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<tr>
<td>37860</td>
<td>Laboratory</td>
<td>A</td>
<td>08:00 AM - 11:50 AM</td>
<td>TW</td>
<td>5105 - Engineering Sciences Building</td>
<td>Colla, E</td>
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<tr>
<td></td>
<td>Laboratory</td>
<td>A</td>
<td>01:00 PM - 04:50 PM</td>
<td>TW</td>
<td>5105 - Engineering Sciences Building</td>
<td>Colla, E</td>
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</table>

Credit Hours: 5 hours
Meets 12-Jun-17 - 03-Aug-17.
Instructor Approval Required

PHYS 497  **Individual Study**  credit: 1 TO 4 hours.
Individual study at an advanced level in a subject not covered by course offerings. 1 to 4 undergraduate hours. 1 to 4 graduate hours. May be repeated. Prerequisite: Consent of instructor.
Before registering for this class, students must file a project outline.

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<tr>
<th>CRN</th>
<th>Type</th>
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<th>Time</th>
<th>Days</th>
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<tr>
<td>10147</td>
<td>Independent Study</td>
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<td>ARRANGED</td>
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</table>

Instructor Approval Required
To register for PHYS 497, use the PHYS 497 CRN (available from the departmental undergraduate records office) specific to the instructor with whom you have arranged to study. (You cannot register under the general CRN 10147.)

PHYS 597  **Individual Study**  credit: 1 TO 16 hours.
Individual study in a subject not covered in course offerings may be arranged for credit by registration under this number. May be repeated. 2 to 16 hours for full term; 1 to 8 hours for half-term. Prerequisite: Consent of instructor.

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<tr>
<th>CRN</th>
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<th>Time</th>
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Instructor Approval Required
To register for PHYS 597, use the PHYS 597 CRN (available from the departmental graduate records office) specific to the instructor with whom you have arranged to study. (You cannot register under the general CRN 10150.)

**PHYS 599  Thesis Research**  credit: 0 TO 16 hours.
Approved for S/U grading only. May be repeated.

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<th>CRN</th>
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<td>10154</td>
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</table>

Instructor Approval Required
To register for PHYS 599, use the PHYS 599 CRN (available from the departmental graduate records office) specific to the instructor with whom you have arranged to study. (You cannot register under the general CRN 10154.)