Physics

PHYS 498  **Special Topics in Physics**  credit: 1 TO 4 hours.

(PHYCS 398) Lecture course on topics of current interest in physics. For advanced undergraduates or graduates. Prerequisites: Determined for each offering; see Schedule.

This course satisfies the General Education Criteria for a:
Advanced Composition

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<th>CRN</th>
<th>Type</th>
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<th>Time</th>
<th>Days</th>
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<th>Instructor</th>
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<td>40486</td>
<td>Lecture</td>
<td>NSD</td>
<td>04:00 PM - 05:50 PM</td>
<td>T</td>
<td>144 - Loomis Laboratory</td>
<td>Yazdani, A</td>
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Credit Hours: 2 hours
Advanced Composition course.

PHYSICS OF NANOSCALE STRUCTURES AND DEVICES. Understanding the physical properties of nanoscale systems has become a major topic in both science and technology. After a review of basic quantum mechanics and solid state physics, we will begin our survey of nanoscience by examining classic problems of electron transport in nanostructures. A number of topics, from quantum interference and confinement phenomena in nanostructures to more recent realization of electronic devices based on single molecules will be discussed. Other topics of interest are superconductivity and magnetism in nanostructures. Throughout the course, we will review both methods of creating nanostructures as well as the techniques used to examine their properties. Prerequisite: PHYS 211-212-213-214. Basic knowledge of calculus and differential equations is assumed. Both engineering and science majors are encouraged to participate.

| 30690 | Lecture| ST      | 02:00 PM - 04:50 PM | F    | 137 - Loomis Laboratory | Cooper, S    |

Credit Hours: 3 hours
Advanced Composition course.

SENIOR THESIS. Prerequisites: consent of instructor; summer research experience appropriate for thesis; PHYS 498IPR (PHYCS 398IPR) (introduction to physics research, offered spring semester) suggested but not required.