# Class Schedule - Fall 2015

## Nuclear, Plasma, and Radiological Engineering

**NPRE 498  Special Topics**  credit: 0 TO 4 hours.

Subject offerings of new and developing areas of knowledge in nuclear, plasma, and radiological engineering intended to augment the existing curriculum. See Class Schedule or departmental course information for topics and prerequisites. 1 to 4 undergraduate hours. 1 to 4 graduate hours. May be repeated in the same or separate terms if topics vary.

<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>65047</td>
<td>Lecture-Discussion</td>
<td>PRA</td>
<td>01:30 PM - 03:20 PM</td>
<td>TR</td>
<td>100H - Talbot Laboratory</td>
<td>Mohaghegh Ahmadabadi, Z</td>
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</tbody>
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Credit Hours: 3 hours  
Advanced Risk Analysis  
Restricted to Undergrad - Urbana-Champaign.  
This course offers a comprehensive and in-depth review of advanced methods for Probabilistic Risk Analysis (PRA). Topics include: fundamental theories of risk modeling, risk scenario development, model uncertainty, parameter uncertainty, uncertainty propagation (e.g. Method of Moment, Monte Carlo), Bayesian updating, data analysis, hardware reliability, human error modeling, risk importance ranking, precursor analysis, expert elicitation and aggregation, and next generation PRA methods and tools. Risk analysis software will be used for homework and class projects. While the examples will primarily focus on the nuclear power domain, the course will also cover current advancements in risk analysis of other complex systems (e.g. space, aviation, oil and gas). Prerequisites: NPRE 498-PR1 Probabilistic Risk Assessment or NPRE 498-RA1 Intro to Socio-Technical Risk Analysis or CEE 491.

| 65018 | Lecture   | R | 02:00 PM - 02:50 PM | M | 245 - Everitt Elec & Comp Engr Lab | Holm, R |

Credit Hours: 2 hours  
Nuclear Reactor Laboratory  
Laboratory experiments relating to nuclear reactor physics and fission reactor operations, including: reactor instrumentation, flux and power measurements, start-up procedures, reactivity worth measurements, reactor period, control rod calibration experiments, and measurements in subcritical, critical and supercritical systems. This will be a reactor lab class based on webcast experiments/labs conducted at the Missouri University of Science and Technology research reactor. Prerequisites: NPRE 455 and NPRE 451.

| 65019 | Laboratory | R1 | 01:00 PM - 03:50 PM | W | ARR - Talbot Laboratory | Holm, R |

Nuclear Reactor Laboratory  
Lab component of NPRE 498 Section R Nuclear Reactor Laboratory. Enrollment requires registration in the Lecture section R. Prerequisites: NPRE 455 and NPRE 451.

| 65020 | Laboratory | R2 | 12:30 PM - 03:20 PM | R | ARR - Talbot Laboratory | Holm, R |

Nuclear Reactor Laboratory  
Lab component of NPRE 498 Section R Nuclear Reactor Laboratory. Enrollment requires registration in the Lecture section R. Prerequisites: NPRE 455 and NPRE 451.