# 2016 Classes Without Quizzes

## Schedule of Classes

<table>
<thead>
<tr>
<th>TIME</th>
<th>CLASS</th>
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<tbody>
<tr>
<td>8:00am - 8:30am</td>
<td>Registration and Continental Breakfast</td>
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<tr>
<td>8:30am</td>
<td>Welcome</td>
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<tr>
<td>8:40am - 9:15am</td>
<td><strong>Understanding the Processes of Virus Assembly and Infection</strong></td>
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<td></td>
<td>Kristin Parent, assistant professor of biochemistry and molecular biology</td>
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<td>To understand the underlying mechanisms that control virus infection, it is important to study viral structures in a biologically relevant manner. Learn about a correlated approach to deciphering the processes of virus assembly and infection using a combination of biochemistry, biophysics and structural biology including cryo-electron microscopy (cryoEM).</td>
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<tr>
<td>9:15am - 9:50am</td>
<td><strong>The Universe in a Box: Studying Galaxies Using Supercomputers</strong></td>
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<td>Brian O'Shea, associate professor of physics and astronomy</td>
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<td>The universe is unimaginably big and old, and the stars and galaxies inside it are complex. How do scientists study all of these things, and how can we have any confidence that we're getting the right answers? Learn how we use supercomputers and computational modeling to study stars, galaxies, the Universe, and everything in between, and how we use observations to ensure that we are getting the right answers.</td>
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<tr>
<td>9:50am - 10:25am</td>
<td><strong>Long Term Consequences of a High Fat Diet: Breast Cancer in Normal Weight Mice and Women</strong></td>
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<td>Richard Schwartz, professor of microbiology and molecular genetics</td>
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<td>Mice fed a diet high in animal fat during puberty have a higher risk of breast cancer as adults. We can observe changes in their mammary glands well before cancers arise. Recent human epidemiological studies suggest that what happens in mice may also be happening in humans.</td>
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<tr>
<td>10:30am - 11:00am</td>
<td>Break</td>
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<tr>
<td>11:00am - 11:35am</td>
<td><strong>Adding Zippers to Plant Cell Walls! Engineering Plant Cell Walls for Deconstruction</strong></td>
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<td>Curtis Wilkerson, associate professor of plant biology</td>
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<td>Plant cell walls represent a large and mostly untapped resource for the production of fuels and chemical feedstocks. The more efficient use of this resource requires altering the cell wall to make it easier to decompose into its chemical constituents. Learn how to insert chemical zippers to make easily digestible walls.</td>
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<tr>
<td>11:35am - 12:10pm</td>
<td><strong>Gold Stars and Nuclear Accelerators</strong></td>
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<td></td>
<td>Hendrik Schatz, University Distinguished Professor of physics and astronomy</td>
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<td>Have you ever wondered where all the chemical elements come from that make up our body and the world around us? Turns out these elements are all relics of dead stars. But how did stars create elements? Nuclear scientists are now restaging in the laboratory the same reactions that create elements inside stars. And they are about to get a new tool that will allow them to fully explore this question - the Facility of Rare Isotopes (FRIB) at Michigan State University. Find out about some of the ideas that may explain the origin of elements such as gold or tellurium, and how FRIB will finally answer these questions.</td>
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<tr>
<td>12:10pm - 12:45pm</td>
<td><strong>Learning Science by Doing Science: Undergraduate Research at MSU</strong></td>
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<td>Visit with Dean's Research Scholars, a group of 14 undergraduate students in the College of Natural Science, and share their insiders' view of life and learning at one of the world’s great research universities.</td>
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<td>Time</td>
<td>Activity</td>
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<tr>
<td>12:45pm</td>
<td>Final Exam</td>
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<td><strong>Optional Tours</strong></td>
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<td>Tours are only available to full-day registrants at Classes Without Quizzes i.e., if you register for Classes Without Quizzes, but your friend does not, your friend cannot participate in the tour.</td>
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<td>Space is limited and is available on a first come, first served basis. Once tour capacity is reached, this option will not be available on the registration site.</td>
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<tr>
<td>1:00pm - 1:45pm</td>
<td><strong>Tour #1</strong></td>
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<td>Tour of the lab of David Kramer, Hannah Distinguished Professor in Photosynthesis and Bioenergetics</td>
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<td>The Kramer lab seeks to understand how plants convert light energy into forms usable for life, how these processes function at both the molecular and physiological levels, how they define the energy budget of plants and the ecosystem and how they have adapted through evolution to support life in extreme environments</td>
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<td>1:00pm - 2:30pm</td>
<td><strong>Tour #2</strong></td>
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<td>Tour of the National Superconducting Cyclotron Laboratory</td>
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<td>Nuclear physics research began at Michigan State University in 1958. In the decades that followed, MSU became known, both in the United States and worldwide, for its innovations in nuclear science and associated cross-disciplinary research. This tour will include an introduction to the goals and methods of nuclear science, and a walk-through of vaults where nuclei are accelerated, filtered and/or studied. Visitors under 18 must have signed permission from a parent or guardian. The tour route is handicap-accessible and safe for those with medical implants.</td>
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<td>NOTE: This does not include a tour of the Facility for Rare Isotope Beams (FRIB). The FRIB is an active construction site and, therefore, tours are not available.</td>
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