



Renewable Energy/Energy Efficiency

Education and Workforce Development

Credit and Credit-Free Courses

Fall 2009

8/25/09

<p>Sustainable Energy Fundamentals SCI 110-2 (NL) (1 cr) CSW 385-2 (15 hours) Credit Free Mondays: 10/19 to 11/16 4:00pm – 5:50pm: Room S336 Saturday: 11/7 9:00am – 1:00pm: Room S336 Instructor: Lynn Benander</p>	<p>Explores the fundamental concepts relating to renewable and nonrenewable energy sources with an emphasis on sustainable energy use and conservation. Topics include world energy use and primary energy sources, local energy issues, and an overview of sustainable energy technologies (e.g. solar, photovoltaics, wind, microhydro, fuel cells, biodiesel and others.) Students explore the scientific underpinning of global warming and how consumption of fossil fuels relates to atmospheric change. <i>Note: Students may receive credit for SCI 110 or SCI 120 but not both.</i></p> <p>Prerequisite: none</p>
<p>Fundamentals of Electricity SCI 112-2 (NL) (3 cr) CSW 382 (45 hours) Credit Free Tuesdays: 9/8 to 12/15 4:00pm to 6:50pm: Room S307 Instructor: Ted Johnson</p>	<p>An introduction to electricity with an emphasis on sustainable energy applications. Topics include DC/AC circuit operations, electrical distribution systems, common semiconductor devices, the National Electrical Code, electrical safety, and common electrical methods and techniques.</p> <p>Prerequisite: MAT 090, COL 090, ENG 090 or satisfactory placement test scores. <i>Recommended: MAT 105</i> <i>Student must be 18 years of age.</i></p>
<p>Introduction to Global Warming SCI 119-2 (1 cr) CSW 399 (15 hours) Credit Free Mondays: 11/23, 11/30, 12/7, 12/14, 12, 21 4:00pm to 5:50pm: Room S336 Saturday: 12/12: Room S336 9:00am to 1:00pm Instructor: Staff</p>	<p>An introduction to global warming and global climate change. Topics include climate change history and projections, the impacts of climate change, vulnerability and adaptation to climate change, and strategies to reduce the impact of global warming.</p> <p>Prerequisite: COL 090, ENG 090 or satisfactory placement test scores</p>
<p>Sustainable Energy: Theory and Practice SCI 120-A (NC) (4 cr) This is not a grant supported course Wednesdays: 9/2 to 12/16 4:00pm to 7:00pm: Room S338 Saturdays: 9/26, 10/17, and 11/14 9:00am – 5:30pm: Room S336 <u>Instructor: Teresa Jones for both sections</u></p> <p>SCI 120-B (NC) (4cr) Wednesdays/Fridays 9/2 to 12/23 9:00am to 10:40am Wed.: RoomS338 9:00am to 12:00pm Fri.: Room S338</p>	<p>Explores the theoretical and practical aspects of renewable and nonrenewable energy sources with an emphasis on sustainable energy use and conservation. Topics include solar, photovoltaics, wind, microhydro, fuel cells, biodiesel and others. Field trips and labs provide hands-on experience working with a variety of energy technology models. Students design, build and monitor working renewable energy systems on campus. <i>Note: Students may receive credit for SCI 110 or SCI 120 but not both.</i></p> <p>Prerequisite: MAT 105 (095) or concurrent enrollment: placement beyond or satisfactory completion of COL 090 and ENG 090</p>
<p>Introduction to Photovoltaic (Solar Electric) Technology SCI 121-2(NL) (3 cr) CSW 391-2 (45 hours) Credit Free Thursdays: 9/3 to 10/22 6:00pm and 8:50pm Room S338 Saturdays: 9/12, 9/26, 10/10, and 10/24 9:00am – 5:30pm Room: S338 Instructor: Richard Gottlieb</p>	<p>An introduction to photovoltaic (solar electric) technology for students with a strong personal interest in Photovoltaic (PV) technology as well as those considering a career in solar electric technology. This course provides students with the theoretical basis for understanding the various types of solar electric systems. The course covers the history of solar electricity, current markets and industry status, basic electrical theory, and other considerations necessary for solar electric systems. Topics include a detailed study of system components as well as the proper and safe electrical interconnection of these components and includes hands-on training exercises and experiments. Local visits to PV related facilities, and assembly of real world system examples reinforces classroom learning.</p> <p>Prerequisite: MAT 090 or satisfactory placement test score.</p>

<p>Introduction to Photovoltaic (Solar Electric) Technology SCI 121- 4(NL) (3 cr) CSW 391-4 (45 hours) Credit Free Mondays: 9/14 to 11/16 6:15pm and 9:05pm Room S336 Saturdays:10/10, 10/17, 10/24 9:00am – 5:30pm, (Room S336) Instructor: Charles Laurel</p>	<p>An introduction to photovoltaic (solar electric) technology for students with a strong personal interest in Photovoltaic (PV) technology as well as those considering a career in solar electric technology. This course provides students with the theoretical basis for understanding the various types of solar electric systems. The course covers the history of solar electricity, current markets and industry status, basic electrical theory, and other considerations necessary for solar electric systems. Topics include a detailed study of system components as well as the proper and safe electrical interconnection of these components and includes hands-on training exercises and experiments. Local visits to PV related facilities, and assembly of real world system examples reinforces classroom learning.</p> <p>Prerequisite: MAT 090 or satisfactory placement test score.</p>
<p>Passive Solar Technology SCI 123-2 (NL) (1 cr) CSW 397(15 hours) Credit Free Mondays: 9/14 to 10/12 4:00pm – 5:50pm: Room S336 Saturday;10/3 10:00am – 2:00pm: Field Instructor: Staff</p>	<p>An examination of the history, science and implementation of passive solar technologies to offset heating, hot water and lighting needs for a house and commercial / industrial buildings. Topics include fundamental principles such as structure orientation, proper glazing materials and installation, use of thermal mass, adequate ventilation, landscape features for cooling, and others. Students see and visit real world applications of these technologies.</p> <p>Prerequisite: MAT 090 or satisfactory placement test score.</p>
<p>Residential Energy Efficiency and Energy Auditing SCI 126-2 and SCI 126-4 (NL) (3 cr) CSW 383 (45 hours) Credit Free Tuesdays: 9/8-12/15 6:15pm – 9:05pm: Room S318 Saturday: 9:00am – 1:00pm: Field 12/5 or 12/12. (Class will be split.) Instructor: Peter Talmage</p>	<p>An exploration of the methods and skills required to perform energy audits of residential buildings. Topics include methods of energy conservation; elements and steps of energy auditing; energy conservation; insulation of walls, foundations and attics; door and window infiltration reduction; lighting and electrical efficiency; heating system analysis and efficiency; energy monitoring equipment; energy audit reporting; and sustainable energy systems. Students will shadow an expert energy auditor doing an actual audit.</p> <p>Prerequisite: MAT 090 or satisfactory placement test score</p>
<p>Introduction to Sustainable Design and Green Building SCI 127-2 (NL) (3cr) CSW 384-2 (45 hours) Credit Free Weds: 9/2-12/16: 6:00pm – 8:50 pm: Room S336 Saturday10/3: 9:00am -1:00pm: Field Instructor: Scott Baum</p>	<p>An introduction to sustainable design and green building. Topics include the study of energy issues related to buildings. Additional topics include residential building site analysis and design; air, heat and moisture flow; green building materials; climate and designing with nature; energy conservation and efficiency; sustainable energy systems; and on-site power generation. Students visit Green buildings to reinforce classroom learning.</p> <p><i>Section A is open only to students in the REE and LRE majors, or by permission of Program Coordinator or Associate Dean.</i></p> <p>Prerequisite: MAT 090 or satisfactory placement test score</p>
<p>Extreme Insulation Retrofits SCI 130-2 (NL) (3cr) CSW 400 (45 hours) Credit Free Mondays: 9/14-12/14 6:15pm –9:05 pm: Room S338 Saturday: 10/3-Field, 11/7-Field 9:00am-1:00 pm: Room S303 Instructor: Peter Talmage for both sections SCI 130 A (NL) (3cr) Mondays: 9/14-12/7 3:00pm-5:50pm - RmS338 , (see right for dates) 6:15pm-9:05 – RmS338 , (see right for dates) Saturday Oct 3, 9am – 1pm, Field Saturday Nov 7, 1pm – 5pm, Field</p>	<p>An examination of the science and techniques of super insulating existing homes to reduce significantly heating energy requirements in an environmentally sound manner. Topics include building construction as it relates to insulation, current problems in insulation envelopes, heat loss in buildings, insulation priorities, insulation material characteristics, costs, construction strategies for insulating basements, walls and roofs, and demonstrations of insulation materials. Students participate in site visits.</p> <p>Prerequisite: MAT 090, COL 090 and ENG 090 or satisfactory placement test scores.</p> <p>For Section SCI 130-A :</p> <p>The 3pm class will meet on 9/14, 9/21, 10/5, 10/12, 10/26, 11/7, 11/23, 11/30, 12/7 The 6:15 class will meet on 9/28, 10/19, 11/2, 11/16</p> <p><i>Section A is open only to students in the REE and LRE majors, or by permission of Program Coordinator or Associate Dean.</i></p>
<p>Sustainable Design and Green Building Practices SCI 227 (NL) (3cr) CSW 401 (45 hours) Credit Free Wednesdays: 9/2 to 12/9 6:00pm – 8:50 pm: Room S307 Instructor: Charlie Laurel</p>	<p>An investigation into sustainable design and green building techniques and how they may be synthesized to best fit a specific construction project. Students expand upon and utilize concepts learned in SCI 127, Introduction to Sustainable Design and Green Building. Students work through a controlled process of analysis and design to produce drawings and models of their own personal green building project. Topics include building form, orientation and site considerations, conservation measures, energy modeling, heating system and fuel choices, renewable energy systems, material choices, and construction budget, mortgage and payback considerations.</p> <p>Prerequisite: SCI 127 and MAT 090 or satisfactory placement test score</p>

If you currently work in the construction or renewable energy/energy efficiency sector, you may take these courses credit free (CSW).