Western UP Center for Science, Mathematics and Environmental Education

Michigan Department of Education
Five Year Review
September 29, 2014
WUPC Structure

- A partnership of Copper Country & Gogebic-Ontonagon Intermediate School Districts and Michigan Tech Center for Science & Environmental Outreach

- Serving schools and communities in Houghton, Baraga, Gogebic, Ontonagon and Keweenaw Counties

- Member of the Michigan Mathematics and Science Centers Network

- Website: http://wupcenter.mtu.edu/
Staff and Offices

- CCISD Office
  - Shawn Oppliger, Director
  - Loret Robert, Secretary

- Michigan Tech Center for Science & Environmental Outreach Office at Great Lakes Research Center
  - Joan Chadde, Program Director
  - Lloyd Wescoat, Program Coordinator
  - Marcy Erickson, Outdoor Investigations Coordinator
WUPC Governance

- Center’s Fiscal Agent: Copper Country Intermediate School District
- Center Director Reports to: George Stockero, Superintendent of the CCISD
- Oversight for Center’s Spending: CCISD School Board.
Strategic Plan Development

- Based on the needs of teachers and students in 19 school districts that WUPC serves.
- Addresses the 6 basic services of the Michigan Math and Science Center Network’s Master Plan
- Based on the mission of Michigan Math and Science Center Network “Building a 21st Century workforce by inspiring and nurturing excellence in mathematics and science for all Michigan schools, students, teachers, and communities.”
Results of Needs Assessment of Teachers and Administrators

- Need for professional learning on CCSS Math Practices and NGSS Content and Practices.
- Need for professional learning on engineering design.
- Need for student programs that highlight STEM careers.
- Need for programs that engage students in higher order thinking skills.
- Need for programs that engage students in project based learning.
Funders - Sept 2009 to Sept 2015

Section 99 of the School Aid Act = $47,000/year

- Great Lakes Fishery Trust (multiple grants 2007-present)
- Kinship Foundation (multiple grants)
- Keweenaw Community Foundation (multiple grants)
- Michigan Math and Science Partnership
- Michigan STEM Partnership (multiple grants)
- Michigan Space Grant Consortium (multiple grants)
- Michigan Forest Foundation (multiple grants)
- Michigan Works
Cont’d. Funders- Sept 2009 to Sept 2015

- Michigan Department of Natural Resources
- National Science Foundation (multiple grants)
- NOAA Bay Watershed Education & Training (B-WET)
- NOAA Environmental Literacy- Earth Force (2 grants)
- Title 2 Teacher Quality
- US Forest Service (2 grants)
- Michigan Tech Center for Water & Society (annual)
Great Lakes Watershed Investigations Teacher Institute

K-12 Summer Teacher Institutes

Great Lakes Maritime

Geology of the U.P.

Forestry Teacher Institute

Global Change Teacher Institute
MTU Summer Teacher Institutes

Cost: $250-$500 for 5-day institute
Generous support from the “Funder” and the MTU “Department Host” has reduced the cost of MTU tuition (official 2013/14 MTU Applied Science Education Graduate Tuition for Residents/Non-Residents is $514 per credit).

Publicity through:
MSTA, MESTA, MAEOE, MI Math & Sci Center Network, past participants

Presenters are Michigan Tech Faculty & Scientists, Teacher experts

View 2014 course offerings:
http://wupcenter.mtu.edu/summer_institutes.html
Global Change
July 7 - 11, 2014

Application Deadline:
June 2, 2014

Cost: $250 off campus
$400 on campus

- Off campus includes
  2 graduate credits, 5 lunches,
  field trips, classroom supplies
- On campus also includes
  5 nights lodging in Hillside
  Place and all meals
- Payment due: June 2, 2014

Submit Applications online:
www.wupcenter.mtu.edu
or
2014 Global Change Teacher Institute
Registration

For More Information:
Joan Chadd, Course Coordinator
Tel: 906.487.3341
Email: jchadc@mtu.edu

About the Institute
This five-day Institute will prepare you to engage your middle and high
school students in a real-world study of the effects of global change on
ecosystems, including the impacts of climate change, elevated carbon
dioxide and ozone levels, nitrogen saturation, acid rain, and invasive
species. Through lecture, hands-on data collection and field trips,
participants will interact with scientists and gain new knowledge and skills.
Teachers will be trained in and receive the Michigan Environmental
Education Curriculum Support Climate Science & Impact unit (easily
adapted to other states). National and Michigan standards for mathematics;
life, Earth and physical sciences, and technology will be addressed.

The Institute will be taught by internationally-recognized researchers from
Michigan Tech University’s School of Forest Resources and Environmental
Sciences, along with guest scientists from the USDA Forest Service Forest
Science Lab, Northern Institute of Applied Climate Science and expert
teachers. The institute provides an opportunity to interact and collaborate
with teachers from across the Midwest and United States.

Participants will visit long-
term field research locations
used to understand the subtle
impacts of nitrogen deposition
and climatic variability on
forest growth, examine the
effects of experimental
warming on northern
ecosystems, and investigate a
subterranean rhizotron
research facility where
scientists study soil carbon
sequestration.

This Institute is partially funded by a grant from the National Science Foundation.
Course Credit & Requirements
Participants will earn 2 graduate credits (FW5641/ED5641) from Michigan Technological University. Course requirements:

◊ Complete pre-course readings and reflections.
◊ Participate fully in all parts of the institute.
◊ **Develop a 5-day teaching unit after the institute that includes five lessons** related to global change (using the rubric provided) and that meets applicable content expectations. Participants should plan to implement the unit during the 2014-15 school year.

**Due September 2, 2014.**

Master of Applied Science Education
The credits earned from this institute can be applied to an 18 semester-hour planned course of study for teachers working towards their Professional Certificate or a Master of Science in Applied Science Education at Michigan Tech.

Getting to Michigan Tech
Michigan Technological University is located in Houghton, MI (pop. 7,000). United Airlines is the sole airline serving Houghton (800.241.6522 or www.united.com) with two flights daily from Chicago. Taxi service is available by calling Copper Country Limo & Taxi at 906.482.4761.

Cost
Cost of the institute is: **$250 off campus** which includes 2 graduate credits, 5 lunches, field trips, and classroom supplies, or **$400 on campus** which also includes 5 nights lodging and meals. [Generous support from the National Science Foundation and the MTU School of Forest Resources & Environmental Sciences has reduced the cost of MTU tuition (official 2013/14 MTU Applied Science Education Graduate Tuition for Residents/Non-Residents is $514 per credit). Payment due June 2nd. Pay by credit card by calling MTU Cashier at 906.487.2247.]

Financial Aid
The Michigan Space Grant Consortium K-12 Educator Incentive Program will provide up to $400 for Michigan teachers to attend workshops on math and science. For an application: [http://mispacgrant.org](http://mispacgrant.org)

How to Register
Complete teacher institute application online:
2014 Global Change Teacher Institute Registration OR [http://wupcenter.mtu.edu/](http://wupcenter.mtu.edu/)
Application deadline June 2, 2014

Register for MTU credits at:
Questions, contact:
Lori J. Witting, Coordinator
Cognitive & Learning Sciences
Michigan Technological University
Work: 906-487-2263 Cell 906-370-9748
Email: lori@mtu.edu

Accommodations
Participants staying on campus will receive 5 nights lodging in single rooms with private baths in Michigan Tech’s new Hillside Place and all meals from Monday breakfast through Friday lunch. Easy walking distance to downtown Houghton and Michigan Tech hiking & biking trails.

Find out more about Michigan Tech at [http://www.mtu.edu/](http://www.mtu.edu/)
### Michigan Tech Summer Teacher Institutes 2004-2014

Total of Summer Teacher Institutes = 44  
Total Number of Participants = 695

<table>
<thead>
<tr>
<th>Year</th>
<th>Forest Resources &amp; Env Sci (3 cr.)</th>
<th>Future Fuels from Forests (3 cr.)</th>
<th>Great Lakes &amp; Stream Monitoring (3 cr.)</th>
<th>Global Change (3 cr.)</th>
<th>Great Lakes Maritime Transp. (2 cr.)</th>
<th>Geology of UP (2 cr.)</th>
<th>Navig. &amp; Math (2 cr.)</th>
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<td>30 Stream Monit</td>
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<td>2002</td>
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<td>9 L. Guardian</td>
<td>21 Stream Monit</td>
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<td>2006</td>
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<td>15 L. Guardian</td>
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<td>22 (2)-Duluth, UP</td>
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<td>2007</td>
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<td>17-Duluth</td>
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<td>2008</td>
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<td></td>
<td>10-Duluth</td>
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<td>24</td>
<td>24</td>
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<td>15</td>
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<td>2010</td>
<td>22</td>
<td>19</td>
<td>12</td>
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<td>18-Toledo</td>
<td>13</td>
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<td>2011</td>
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<td></td>
<td>19-UP</td>
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<td>2012</td>
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<td>9</td>
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<td>19- Door Co.</td>
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<td>2013</td>
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<td>10</td>
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<td>17-Door Co.</td>
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<td>2014</td>
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<td>9</td>
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<td><strong>3</strong></td>
<td><strong>12</strong></td>
<td><strong>9</strong></td>
<td><strong>8</strong></td>
<td><strong>2</strong></td>
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<td><strong>61</strong></td>
<td><strong>199</strong></td>
<td><strong>130</strong></td>
<td><strong>122</strong></td>
<td><strong>26</strong></td>
<td><strong>24</strong></td>
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</table>
Summer Teacher Institute Feedback Quotes

Great Lakes 2014
This teaching unit was terrific for me to develop, and I know that I will use it this year. I loved the Great Lakes Teacher Institute! I learned so much!

Chris Kelly, Middle School Science Teacher, Allendale Schools

Urban Forestry 2014
What an informative week!

Lora Currie, Gr. 5-6 Teacher, Bedford Schools, Temperance

One of the best learning experiences I've ever had! The hands-on learning activities were great.

Karen Rodwan, Science Teacher, Comstock HS, Kalamazoo

Global Change 2014
This institute broadened my ideas about global change and how I will present it to my students. I gained new ideas, colleagues, and experiences.

Wendy Hiltunen, Middle School Science Teacher, Sacred Heart School

"I learned so much from experiencing real research with the professors at Michigan Tech. Now I can implement real scientific investigations with my students."

Christine Geerer, Science Teacher, Parcells Middle School, Grosse Pte Woods
Outdoor Science Investigations
Field Trip Program

In 2013-14, the Center provided 112 field trips for 2489 K-8 students in 17 schools in Houghton, Baraga, Ontonagon, and Gogebic Counties. Funded with grants.

http://wupcenter.mtu.edu/education/fieldtrips/index.htm
## Outdoor Science Investigations Field Trip Program 2001-2014

### Program Delivery

<table>
<thead>
<tr>
<th>School Year</th>
<th>Total Number of Field Trips Conducted</th>
<th>Total # of Students Participating</th>
<th># of Schools Participating</th>
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<td>74</td>
<td>2386</td>
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<td>2002-2003</td>
<td>114</td>
<td>2409</td>
<td>18</td>
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<tr>
<td>2003-2004</td>
<td>113</td>
<td>2326</td>
<td>18</td>
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<tr>
<td>2004-2005</td>
<td>158</td>
<td>3012</td>
<td>18</td>
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<tr>
<td>2005-2006*Fall/Winter only</td>
<td>99</td>
<td>1986</td>
<td>15</td>
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<tr>
<td>2006-2007</td>
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<td>2369</td>
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<td>2007-2008</td>
<td>109</td>
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<td>2008-2009</td>
<td>125</td>
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<td>2009-2010</td>
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<td>3665</td>
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<td>2010-2011</td>
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<td>3444</td>
<td>25</td>
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<td>2011-2012</td>
<td>218</td>
<td>4621</td>
<td>26</td>
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<tr>
<td>2012-2013</td>
<td>139</td>
<td>3253</td>
<td>26</td>
</tr>
<tr>
<td>2013-2014*weather!</td>
<td>112</td>
<td>2489</td>
<td>17</td>
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</table>
Family Engineering, Science, Forest, Chemistry, Physics Nights

- Conduct 12-15 events each year in the four western counties of U.P. since 1998.
- Hands-on activities presented by MTU students enrolled in *Communicating Science* (2 credits) and STEM student chapters.
- Reach ~2,500 K-6 students & parents each year.
- Events held at schools, museum, library, Pow-Wow, Girl Scouts, etc.
MTU is Co-Developer of NEW Family Engineering Program

www.familyengineering.org

To increase the number and diversity of future engineers by increasing awareness and understanding of engineering and careers amongst elementary-age children & parents.

Designed for informal learning environments….events may be led by professional engineers, college students, museum educators, parents, teachers, etc.
## Family Science & Engineering Nights

### ATTENDANCE SUMMARY ~ Fall 2009-Spring 2014

<table>
<thead>
<tr>
<th>#</th>
<th>Date</th>
<th>School</th>
<th>2009-10 TOTAL Student &amp; Parents</th>
<th>2010-11 TOTAL Student &amp; Parents</th>
<th>2011-12 TOTAL Students &amp; Parents</th>
<th>2012-13 TOTAL Students &amp; Parents</th>
<th>2013-14 TOTAL Students &amp; Parents</th>
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<tr>
<td>1</td>
<td>Family Forest Night</td>
<td>Lake Linden-Hubbell Elem</td>
<td>94</td>
<td>55</td>
<td>134</td>
<td>94</td>
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<td>2</td>
<td>Family Technology Night</td>
<td>Portage Lake District Library</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>40</td>
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<td>3</td>
<td>Family Sci &amp; Engin Night</td>
<td>Dollar Bay Elementary</td>
<td>99</td>
<td>82</td>
<td>74-F 90-S</td>
<td>94</td>
<td>60</td>
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<td>4</td>
<td>Family Science &amp; Engin Night (Fall &amp; Spring)</td>
<td>CLK Elementary</td>
<td>184-F 102-S</td>
<td>189-F 48-S</td>
<td>155-F 106-S</td>
<td>148-F 80</td>
<td></td>
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<td>5</td>
<td>Family Science &amp; Engin Night</td>
<td>Wakefield-Marinesco School</td>
<td>68</td>
<td>83</td>
<td>75</td>
<td>91</td>
<td>88</td>
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<td>6</td>
<td>Family Scie &amp; Engin Night</td>
<td>Arvon School</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>12</td>
<td>16</td>
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<td>7</td>
<td>Family Science &amp; Engin Night</td>
<td>Houghton Elementary</td>
<td>143</td>
<td>90</td>
<td>173</td>
<td>93</td>
<td>99</td>
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<td>Family Science &amp; Engin Night (Fall)</td>
<td>Barkell Elementary</td>
<td>205-F 202-S</td>
<td>138-F 188-S</td>
<td>141-F 242-S</td>
<td>231-F 118-S</td>
<td>106-F</td>
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<td>12</td>
<td>Family Science &amp; Engin Night</td>
<td>Ewen-Trout Creek Elem</td>
<td>-</td>
<td>-</td>
<td>58</td>
<td>89</td>
<td>48-F 39-S</td>
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<td>13</td>
<td>Family Science &amp; Engin Night</td>
<td>Washington Elem-Bessemer</td>
<td>73</td>
<td>60</td>
<td>50</td>
<td>66</td>
<td>59</td>
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</table>

| TOTAL                                      |                                      |                                  |                                  |                                  |                                  |                                  |   |
Success of Family Science & Engineering Nights

- **Increasing awareness and interest in STEM careers**
  FSEN events have shown significant positive impacts on families’ interest in, and awareness of, what scientists and engineers do.

- We learned that just about everything we do involves engineering.

- “The activities were fun and creative for all ages.

- It’s a good chance to learn together.

- The whole family loves it from Pre-K to parents.

- It’s cool to see how interested my child is in science.

- This is a fun & educational activity for families and we look forward to it each year.

**After your experience tonight, does your family have a better understanding of how engineering impacts our lives?** 100% **YES**

**After your experience tonight, are you now more likely to encourage your child to consider a career in engineering?** 95% **YES**
Out of School STEM Classes

- For Gr. 1-6 students
- Taught by MTU Students & Center Staff
- Fall, Winter, Spring After School Sessions
- Spring & Summer Camps
- Self-Supporting (our goal!)
<table>
<thead>
<tr>
<th>#</th>
<th>Title</th>
<th>Type</th>
<th>Content Area</th>
<th>Dates</th>
<th>Target Grades</th>
<th># Students</th>
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<td>1</td>
<td>Rocks &amp; Minerals</td>
<td>After School</td>
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<td>Winter 2013</td>
<td>Gr. 1-3</td>
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<td>2</td>
<td>Water &amp; Engineering</td>
<td>After School</td>
<td>Engineering</td>
<td>Winter 2013</td>
<td>Gr. 4-6</td>
<td>20</td>
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<td>3</td>
<td>Design Windmills</td>
<td>After School</td>
<td>Engineering</td>
<td>Fall 2013</td>
<td>Gr. 4-6</td>
<td>14</td>
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<tr>
<td>4</td>
<td>Digital Design</td>
<td>After School</td>
<td>Technology</td>
<td>Fall 2013</td>
<td>Gr. 4-6</td>
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<td>5</td>
<td>Water Explorations</td>
<td>After School</td>
<td>Engineering</td>
<td>Winter 2014</td>
<td>Gr. 4-6</td>
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<td>6</td>
<td>Animal Doctors</td>
<td>After School</td>
<td>Science-Life</td>
<td>Winter 2014</td>
<td>Gr. 4-6</td>
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<td>7</td>
<td>Wild about Wildlife</td>
<td>After School</td>
<td>Science-Life</td>
<td>Winter 2014</td>
<td>Gr. 1-3</td>
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<td>Wild about Winter</td>
<td>After School</td>
<td>Science-Phys. &amp; Life</td>
<td>Winter 2014</td>
<td>Gr. 1-3</td>
<td>16</td>
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<td>Best of Bugs</td>
<td>Fall In-Service Day</td>
<td>Engin &amp; Sci-Life</td>
<td>Fall 2013</td>
<td>Gr. 1-3</td>
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<td>Cardboard Carnival</td>
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<td>Science-Life</td>
<td>Summer 2013</td>
<td>Gr. 4-6</td>
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<td>17</td>
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<td>Sci-Physical</td>
<td>Summer 2014</td>
<td>Gr. 1-3</td>
<td>14</td>
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<td>Rockets &amp; Roller Coasters</td>
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<td>Summer 2014</td>
<td>Gr. 4-6</td>
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<td>Apps for Change</td>
<td>After School</td>
<td>Technology</td>
<td>Spring 2014</td>
<td>Gr. 9-12</td>
<td>15</td>
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</table>

Total # Attended: 312

Spring & Summer Camps = 3 days, 7 hours/day
After School Classes = 90 min/day once per week for 6 weeks
After School Classes for Grades 4 - 7
at MTU’s Great Lakes Research Center!

Totally Technology

Choose one:
4:00 - 5:30 pm, Mondays (Grades 4-5) ~ Jan. 27 - Mar. 3
4:00 - 5:30 pm, Thursdays (Grades 6-8) ~ Jan. 30 - Mar. 6

Cost:
$85 per student
includes instruction and all supplies.

Pay by credit card:
call MTU Cashier at 487-2247.
(Your space is not reserved until payment is received).

Register Online:
www.wrupercenter.mtu.edu

Questions?
Please call the Center at 487-3341

NOTE:
Houghton school bus will drop off students at GLRC at 4pm.

- Use kid-friendly software designed by MIT researchers;
- Learn Java programming basics to develop custom mobile apps for Android smartphones;
- Download finished games to any Android phone or tablet to share with friends and family;
- Explore electrical engineering using Sew Electric - sewing and circuitry combined to create light-up stuffed animals;
- Design objects on a 3D printer!

Open to 12 students per class!
Register ASAP, accepted on first come basis
No previous experience needed!
All students welcome!

Class Instructor:
Chad Norman, Science & Technology Education Specialist, Michigan Tech Center for Science & Environmental Outreach, will teach both classes.

Michigan Tech
Michigan Technological University
Summer Science Camp
For Students Entering Grades 1-6

Session I: June 18-20, 9:00 am to 4:00 pm
Session II: June 25-27, 9:00 am to 4:00 pm

Grades 1-3
Session I: Forest Explorations
What grows in our northern forests? Who lives there? Join us for three days of exploring the forest at Nara Nature Park and learning about plants, soil, fungi, wildlife, insects, and more!

Session II: Things That Move—Trains, Planes, Boats & Cars
Students will design planes, boats, and cars; make a traffic safety plan for their classroom and for their neighborhood, design a bike helmet, and plan the best way to move freight across the country.

Grades 4-6
Session I: Exploring the Great Lakes
Campers will investigate some of the research being conducted at the Great Lakes Research Center, conduct their own experiments, and design water management structures. They will dissect a fish stomach, drive an ROV and do water sampling aboard the Agassiz!

Session II: Outdoor Explorations
During 3 days at Nara Nature Park, campers will engage in insect and amphibian sampling, bird watching, tree ID, and forest measurements. Campers will use tools such as binoculars, field guides, clinometers and GPS units.

For More Information or to Register:
Michelle Miller
Email: michellem@mtu.edu
Phone: (906) 487 - 3341

Registration Form: wupcenter.mtu.edu

Session Cost: $120/child/session (includes all supplies)
Class size: limited to 16 students (minimum 12)
Meals: Students bring their own lunch & snacks
Ride the Waves Participation Summary ~ May-Oct. 2013

48 student excursions AND 9 community excursions
25 Aquatic Food Web & Lab Investigation
6 Mine Waste Remediation & Torch Lake Restoration
3 Investigate “the Lake” with a Remotely Operated Vehicle
4 Lake Superior’s Ring of Fire

567 students + 219 adults = 786 Total Participants
Total MTU Faculty & Staff “in-kind” = 300 hours

“Thank you!! This is fantastic! We are so excited to have the students go on this trip.

"I want to know how you guys chose this job!"

“Thanks for doing the boat trip. It was 10x better than fun!”
"I liked best that since there weren't so many people on the boat, you got a chance to do everything."
W.U.P. Science Fair & STEM Festival

- 2002-2014
- 250-400 participants
- 100+ volunteers (judges, Festival presenters)
- 24 different STEM stations

http://wupcenter.mtu.edu/education/sciencefair/index.html
The Water Festival is designed to:
offer students engaging standards-based experiences taught by MTU scientists, students, and community experts involved in Great Lakes and STEM career fields
2014 Water Festival
at MTU’s Great Lakes Research Center

Thursday, October 23

FREE for 4–8th grade students in CCISD & GOISD

Science & engineering,
STEM careers, activities, art,
Great Lakes stewardship,
and MORE!

Come to the Great Lakes Research Center (GLRC) on MTU’s waterfront campus for an exciting array of activities that will increase your students’ knowledge of Great Lakes science, social studies, and engineering! During each half-day session, students will attend four 35-minute activities.

The Water Festival is designed to offer students engaging standards-based experiences taught by MTU scientists, students, and community experts involved in Great Lakes and STEM career fields. Activities will span content areas and will provide hands-on learning opportunities for students.

What will be offered?
- Remotely Operated Vehicles
- Non-native invaders
- Great Lakes monitoring
- Low impact development
- Land & water stewardship
- Keweenaw geology
- Aquatic food web
- Water around the world
- Emerging contaminants
- Fish ecology & habitat

Who are the presenters?
Presenters include Michigan Tech faculty, staff, students, community organizations, government agencies, authors, artists, photographers, and more.

Choose one session to attend:
Morning: 8:45 - 11:30 am
Afternoon: Noon - 2:50 pm

Register Early!
(some for 20 classes per session)
Bus travel stipends (1 bus per school) for first 10 schools to register.

Register online at:
http://wupcenter.mtu.edu

Please indicate:
✔ Teacher name and school
✔ Grade level
✔ Class size
✔ Morning or afternoon session

Questions Contact:
Joan Chadde jchadde@mtu.edu
Lloyd Wescoat lwescoat@mtu.edu
Or call: (906) 487-3341

Lake Superior Celebration

6:00-8:00 PM ~ TUESDAY, APRIL 22

at Michigan Tech’s Great Lakes Research Center

HANDS-ON ACTIVITIES
- Building tours: green roof & other cool stuff!
- Dollar Bay High School S.O.A.R. Team’s ROV demo
- Build a groundwater model in a cup
- Wild About Wildlife!

LOCAL OFFERINGS
- Growing Up Green ~ new PBS video on Great Lakes Stewardship Initiative
- School-Community Projects
- Taste “Superior” local foods
- Plants, herbs, honey, maple syrup, jams, other products

CELEBRATE!
- Wildflowers of the U.P. by Bob Wild, Porcupine Mountain Wilderness State Park
- Water’s Edge Art Exhibit with Amy Arenson, Bonnie Peterson, Joyce Koskenmaki
- Displays & exhibits
- Cake & lemonade

Lake Superior Stewardship Initiative
Bringing schools & communities together in the stewardship of Lake Superior and its watershed.

ALL INVITED! FREE!

Sponsored by Lake Superior Stewardship Initiative, Michigan Technological University, and Western U.P. Center for Science, Mathematics and Environmental Education. Funded in part with a grant from the Michigan Space Grant Consortium.
# Green Film Series: Issues & Dialogue

**3rd Thursday, January–June 2012**

More info: [http://lakesuperiorstewardship.org](http://lakesuperiorstewardship.org)

**Location:** G002 Hesterberg Hall & Atrium, Michigan Tech Forestry Bldg.

**Time:** 7:00 – 8:30 pm, includes coffee, dessert, and facilitated discussion

**Cost:** FREE; $3 suggested donation

**Credit:** Teachers may earn 0.6 SB-CEUs for attending 4 films

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<thead>
<tr>
<th>Date</th>
<th>Title</th>
<th>Description</th>
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<tbody>
<tr>
<td>January 19</td>
<td><em>The Economics of Happiness</em> - A documentary that examines how 'going local' is a powerful strategy to help repair our fractured world—ecosystems, societies and ourselves. (65 min.) Discussion facilitator: Dr. Daya Muralidharan, MTU School of Business and Economics</td>
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<td>February 16</td>
<td><em>Addicted to Plastic</em> - Reveals the history and worldwide scope of plastics pollution, investigates its toxicity and explores solutions. (85 min.) Discussion facilitator: Dr. Judith Perlinger, MTU Dept. of Civil &amp; Environmental Engineering</td>
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<td>March 15</td>
<td><em>Blue Gold: World Water Wars</em> - This award winning documentary posits that we're moving closer to a world in which water—a seemingly plentiful natural resource—could actually incite war. (90 min.) Discussion facilitator: Dr. Alex Mayer, Michigan Tech Center for Water &amp; Society</td>
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<td>April 19</td>
<td><em>Carbon Nation</em> - A documentary movie about climate change SOLUTIONS. (82 min.) Discussion facilitator: Dr. Sarah Green, MTU Dept. of Chemistry</td>
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<td>May 17</td>
<td><em>Food</em> - is a local issue, a global issue, and a development, health, political and economic issue. How can we design a food system that ensures health, accessibility and affordability for everyone? (49 min.) Discussion facilitator: Sara Salo, School Food Tour</td>
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<td>June 21</td>
<td><em>Into Eternity</em> - explores the mind—boggling scientific and philosophical questions that long-term nuclear waste storage poses. (58 min.) Discussion facilitator: Dr. Wayne Pennington, Dept. of Geological Sciences &amp; Engineering</td>
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Cosponsored by Lake Superior Stewardship Initiative, Michigan Tech Center for Water & Society, Keweenaw Unitarian Universalist Fellowship and Keweenaw Land Trust

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**Green Film Series: Issues & Dialogue**

One Thursday each month, January - May 2014

**Location:** 6002 Hesterberg Hall, Michigan Tech Forestry Bldg

**Time:** 7:00-9:00 pm; enjoy coffee, dessert, and facilitated discussion

**Cost:** FREE; $3 suggested donation

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**Jan. 23 - Fuel** A shrinking economy, failing auto industry, rampant unemployment, out-of-control national debt, and an insatiable demand for energy weigh heavily on all of us. “Fuel” points the way out of this mess by explaining how to replace every drop of oil we now use, while creating green jobs and keeping our money here at home. Not dwelling on the negative, the film shows solutions already within our reach. (112 min.)

**Feb. 20 - Tiny: A story about living small** The “tiny house” movement can be traced back as far as Thoreau’s book, Walden. Thoreau’s ideal of simplifying life, considering which comforts and possessions can be done without in order to live a life that is “more deliberate” rings true for many. Whatever their motivation, Tiny House owners have come up with some inspiring designs and innovations for living comfortably in small spaces. (62 min.)

**March 20 - Gasland** Focusing on US communities impacted by natural gas drilling (fracking), the producer spent time with citizens in their homes and on their land as they relayed stories of natural gas drilling including a variety of chronic health problems directly traceable to contamination of their air, of their water wells or of surface water. Throughout the documentary, Fox reached out to scientists, politicians, and gas industry executives. Find out why hydraulic fracturing was exempted from the Safe Drinking Water Act in the Energy Policy Act of 2005. (100 min.)

**April 17 - Thin Ice** Climate science has been coming under increasing attack. In this documentary, geologist Simon Lamb takes his camera to climate science colleagues around the world to find out what’s really going on and reveals the human face of climate science. The film provides an accessible introduction to the latest Assessment Report of the Intergovernmental Panel on Climate Change. (114 min.)

**May 15 - GMO OMG** Explores the systematic corporate takeover and potential loss of humanity’s most precious and ancient inheritance: seeds, investigating how loss of seed diversity and corresponding laboratory assisted genetic alteration of food affects young children, the health of our planet, and freedom of choice everywhere. Following one family’s struggle to live and eat without participating in an unhealthy, unjust, and destructive food system. Has the global food system been irrevocably hijacked, or can we take back our food, heal the planet, and live sustainably? (85 min.)


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Cosponsored by Lake Superior Stewardship Initiative, Michigan Tech Center for Water & Society, Keweenaw Unitarian Universalist Fellowship, and Keweenaw Land Trust
Lake Superior Youth Symposium
May 16-19, 2013
for 500 students & teachers in Gr. 8-12 from MI, WI, MN, ON
held at Michigan Tech

http://lakesuperioryouth.org/index2013.html

NEXT
Lake Superior Youth Symposium
will be Thurs-Sun., May 21-24, 2015 in Thunder Bay, Ontario, Canada hosted by Lakehead Schools.

For information, contact: Susan Heald
<susan_heald@Lakeheadschools.ca>