



Cycle the Rockies- *Energy and Climate Change in Montana*

6 semester credits

Academic Credit

All courses offered by the Wild Rockies Field Institute are accredited through the University of Montana with administrative support from the School for Extended and Lifelong Learning. Academic oversight of each Wild Rockies Field Institute course comes from University of Montana departmental leadership and faculty. Accepted students have the potential to earn credit in two academic courses (3 credits each):

- Environmental Studies 395- Field Studies of Climate Change in Montana
- Natural Resources Science & Management 321- Field Studies of Energy Systems in Montana

Estimated Course Contact Hours and Academic Work Time

The time ranges below describe daily student requirements for participation on a WRFI course. These ranges are approximate and vary with assignments, field learning opportunities, and environmental conditions:

- Instructional Contact Hours- 2-4 hours of formal classroom-style work per course day. This includes lectures, discussion-based classes, guest speaker presentations, individual meetings with course instructors or teaching assistants, and academic exercises not involving field exploration.
- Field / Laboratory Contact Hours- 2-4 hours per course day. This includes field explorations and exercises, site visits, local guest speakers, and opportunistic instruction as relevant examples of course concepts and issues arise.
- Individual Academic Work- 2-6 hours per day. This includes completing required readings, individual writing assignments, research investigation associated with course assignments, reviewing peer work.

* The average amount of Instructional and Field / Laboratory contact time is 5.5 hours per day.

* Each 3-credit WRFI course is developed with approximately 67 contact hours.

Course Dates

Pre-Field Expedition Coursework	June 12 - June 18, 2019
Field Expedition	June 19 - July 16, 2019
Post-Field Expedition Coursework	July 17 - July 25, 2019

Instructors

Matt Frank- M.S. Environmental Studies, University of Montana; B.A Environmental Studies, Allegheny College

Margot Higgins- Ph.D. Environmental Science, Policy and Management, University of California-Berkeley; M.A. Human Development, Graduate School of Education, University of California-Berkeley; M.S. Environmental Studies, University of Montana; B.A. American Studies and Art History, Colby College

Ben Johnson- M.S. Natural Science Education / Environment and Natural Resources, University of Wyoming. B.A. Humanities, Fort Lewis College

Teaching Assistant

Stephanie Fisher- M.S. Environmental Studies, University of Montana; B.S. Elementary Education, Appalachian State University

Location

This course takes place in Montana, beginning in eastern Montana and ending in Northwestern Montana. Along the approximately 700-mile cycling route, the group will explore Billings and communities in Central Montana, the state capitol in Helena, the Rocky Mountain Front, and Glacier National Park.

Cycle the Rockies Description

This course takes place on a bicycle tour of Montana, starting in the ranchlands and coalfields near Billings, through various renewable energy facilities on the central plains, to the center of energy policy debates at the state capitol in Helena, and finally over the Divide to Glacier National Park. Students on this course will explore the ecological, social, and economic issues associated with energy production and use, and global climate change. We will traverse rolling plains and beautiful mountains, enjoying the changing landscapes and meeting with people deeply involved in energy and climate issues. Traveling by bicycle will give us a unique perspective and an appropriate pace for examining the past, present and future of energy and climate change in the West.

Environmental Studies 395: *Field Studies of Climate Change in Montana*

Course Description

Climate change is significantly altering mountain and grassland ecosystems throughout the American West, with powerful consequences for associated human communities and economies. Understanding the intersection of these biophysical and sociocultural systems is essential for all students concerned with environmental issues. Montana offers a wide array of landscapes, communities and industries in which to study climate change. This course examines current and probable impacts of climate change, evaluates how farmers, ranchers, protected area managers and others are responding to climate change, and engages students directly in policy debates regarding Montana's climate future. Traveling by bicycle allows us to move through the state at a pace that connects us to Montana's diverse landscapes and communities.

The course starts in Billings discussing coal and oil development, then heads north to a coalmine and west through grassland steppes and island mountain ranges on Montana's central plains. Along the way we visit civic leaders, ranchers, and activists. Also on the itinerary are renewable energy production sites including: wind, solar, geothermal and hydroelectric facilities. At the midpoint of the course we visit a center of energy and climate policy debates at the state

capitol in Helena, and then ride north through Augusta and Choteau, then over the Continental Divide in Glacier National Park. On that segment of the course we meet conservationists, farmers, school officials, and climate researchers in Glacier National Park before shuttling back to Missoula for the closing student-run public presentation.

Academic Objectives

Each student will:

1. Understand the basic biophysical mechanisms of climate changes through earth's history and in the present.
2. Understand the current and predicted effects of climate change on agricultural lands and mountain ecosystems in Montana.
3. Understand and evaluate climate change adaptation and mitigation strategies.
4. Evaluate various local, state and national policy responses to climate change.
5. Integrate their direct experience with landscapes and communities affected by climate change with academic readings and assignments.
6. Communicate with the public and policy makers about Montana's climate future through writing and presentations.
7. Become safe and efficient at bicycle touring.

Natural Resources Science & Management 321:

Field Studies of Energy Systems in Montana

Course Description

Energy production (and associated climate change issues explored on the concurrent course) is among the most important and complex issues facing communities, economies, and ecosystems in the Rocky Mountain West. Montana has abundant quantities of coal, natural gas, and other hydrocarbon resources, which will help accelerate climate change if developed. At the same time Montana, with vast agricultural plains for biofuel production, as well as abundant wind, sun, and geothermal resources, is well positioned to produce renewable energy. Montana is an excellent place to explore a range of energy developments that will shape significant aspects of our economic, cultural, and ecological futures. Our focus is on the many possibilities for creating a sustainable energy future for Montana and the Rocky Mountain region.

Academic Objectives

Each student will:

1. Understand the basic physics and technology used to produce energy in Montana, including coal, oil, natural gas, solar, wind, geothermal, hydroelectric, and biomass.
2. Understand the political, regulatory, and economic context of producing and distributing energy in the Western U.S.
3. Understand concepts and social / environmental consequences of distributed vs. centralized generation, renewable vs. alternative energy, and efficiency vs. conservation.
4. Have had a diverse array of direct experiences with the industries, communities, landscapes, and individuals concerned with energy issues in Montana.
5. Effectively communicate course experiences and learning with the public and policy makers through writing and presentations.

6. Become safe and efficient bicycle tourers.

Course Requirements and Evaluation

All students will earn a letter grade for this course. All written work is evaluated using a standard college writing descriptive rubric. For undergraduate credit, students will be required to complete the following before the end of the course:

- Pre-Course Assignments (5%)- Calculate your carbon footprint and compare your yearly carbon footprint to that of the average US Citizen and the average Montanan and write a critical response to *What Every Westerner Should Know About Energy* reading.
- Climate Communication (5%)- Take a challenging set of readings and adapt them for consumption by a wider audience. Present the readings and your summary of them, to classmates. Lead a discussion.
- By the Numbers (5%)- As different energy sources are introduced (coal, wind, hydro, etc), students will create a "By the Numbers" profile for Montana. The purpose of these statistics is to be able to compare different industries and to track changes over time. Students should record relevant stats for each power source, including economic data, jobs, production, exportation, etc.
- Climate & Energy Blogs (20%)- Write two 600-word weblog entries on course events and climate change topics, and peer edit two weblogs. These will be posted on the Wild Rockies Field Institute blog and promoted on the WRFI website.
- Citizen Letter (15%)- Write a public comment letter on climate change and energy to a government decision-maker or other public forum.
- Climate Change & Energy Examinations (30%)- Synthesize key insights on the topics covered in each major section of the course, including: climate and energy policy and climate change science.
- Academic Participation (5%)- Demonstrate engagement with the course material, including active participation in class discussions, meetings with guest speakers, and individual meetings with instructors.
- Experiential Participation (5%)- Participate in the necessary practical aspects of the course: safety consciousness, following directions, proactive participation in camping and group travel tasks.
- Final Presentation (10%)- Individually contribute to a group presentation communicating course experiences and learning to a public audience at course end.

Disability Services for Students

The University of Montana is an equal opportunity education provider and will provide reasonable accommodations for any student taking this course for academic credit. Students with disabilities, who are taking courses through the Wild Rockies Field Institute, may request reasonable accommodations by contacting their field instructors. For questions, concerns, or additional information, students may also contact Roger Maclean, Dean, UM School of Extended and Lifelong Learning: 406-243-2983 or roger.maclean@umontana.edu.

Readings

Because of the complementary nature of the two courses that together make up the Cycle the Rockies program, these readings do cover both *ENST 395 Field Studies of Climate Change in Montana* and *NRSM 321: Field Studies of Energy Systems in Montana*. This itinerary may change with issues, logistics, and speaker availability. Readings are adapted and updated each year to reflect current issues.

Course Overview

WRFI Course Pack

Limerick, Patty. (2003). *What Every Westerner Should Know about Energy*. Center of the American West, University of Colorado at Boulder. Retrieved from:

www.centerwest.org/publications/pdf/energy.pdf (19p)

ENERGY

6/19: Intro to Energy in Montana

Marshak, S. (2015). Introduction & Sources of Energy in the Earth System. Pp. 504-508 in *Earth: Portrait of a Planet*, 4th ed. New York: W.W. Norton. (5p)

MT DEQ. (2014). Summary Points: Electricity Supply and Demand in Montana. *Understanding Energy in Montana: A Guide to Electricity, Natural Gas, Coal, Petroleum, and Renewable Energy Produced and Consumed in Montana*. (1p)

Supplemental—Online

PSC. (2014). *Northwestern Energy Residential Electric Rates and Electricity Supply (Through June 2014)*. Montana Public Service Commission, Helena. Available:

<http://www.mtaffordableelectricity.org/wp-content/uploads/2015/10/2014-NWE-Electric-Rate-Graphs.pdf>

6/20: Energy Efficiency

Limerick, Patty & Howard Geller. (2007). Pp 1-6, 16-17, 19-20, 25-29, 32-33, 51, excerpts from *What Every Westerner Should Know about Energy Efficiency and Conservation: A Guide to a New Relationship. Report from the Center #8*. Center for the American West, University of Colorado at Boulder & Southwest Energy Efficiency Project, Boulder, CO. (18p)

Supplemental—Online

MT DEQ. (2016). *Montana Energy Savers Guidebook, Montana Department of Environmental Quality*. Saturn Resource Management, Inc.: Helena, Montana. Retrieved from:

https://deq.mt.gov/Portals/112/Energy/EnergizeMT/Conservation/MTESG_032316_print.pdf

FOSSIL FUEL ENERGY

6/21: Oil & its Transport

Marshak, S. (2015). Introducing Hydrocarbon Resources and Energy Choices, Energy Problems. Pp. 508-517; 535-542 in *Earth: Portrait of a Planet*, 4th ed. New York: W.W. Norton. (18p)

MT DEQ. (2014). Summary Points: Petroleum and Petroleum Products in Montana. *Understanding Energy in Montana: A Guide to Electricity, Natural Gas, Coal, Petroleum, and Renewable Energy Produced and Consumed in Montana*. (1p)

Bonogofsky, Alexis. (2016). I was sick for a year after an oil spill. Five years later, pipeline accidents are worsening. Truthout.org, 16 July. (6p)

6/22: Coal- Montana's biggest source of energy

- Marshak, S. (2015). Coal: Energy from the Swamps of the Past. Pp. 524-528 in *Earth: Portrait of a Planet*, 4th ed. New York: W.W. Norton. (5p)
- MT DEQ. (2014). Summary Points: Coal in Montana. *Understanding Energy in Montana: A Guide to Electricity, Natural Gas, Coal, Petroleum, and Renewable Energy Produced and Consumed in Montana*. (1p)
- Frank, M. (2016). Off the Rails. *Mountain West News*. Retrieved from <https://mountainwestnews.org/off-the-rails-9e0b61776adb> (12p)
- VIDEO: Radley, K. (2012). Battle of the bulls: A coal conflict in cattle country. *Vimeo*. Senior project. Retrieved from: <https://vimeo.com/57569979>.

6/23: Carbon Cycle and Carbon Sequestration on the Ranch

- Marshak, S. (2015). Carbon Cycle. Pp. 846-846 in *Earth: Portrait of a Planet*, 4th ed. New York: W.W. Norton. (1p)
- Powlson, D. S., Whitmore, A. P. and Goulding, K. W. T. (2011). Soil carbon sequestration to mitigate climate change: a critical re-examination to identify the true and the false. *European Journal of Soil Science*, 62: 42–55. (12p)
- VIDEO: Savory, A. (2013, February). How to fight desertification and reverse climate change. *TED talk*. Retrieved from http://www.ted.com/talks/allan_savory_how_to_green_the_world_s_deserts_and_reverse_climate_change?
- McWilliams, J.E. (2013). All sizzle and no steak. *Slate*. Retrieved from http://www.slate.com/articles/life/food/2013/04/allan_savory_s_ted_talk_is_wrong_and_the_benefits_of_holistic_grazing_have.html. (3p)

6/24: Political Economy of Fossil Fuels- Economics & Acceptable Risk

- Houser, T., Bordoff, J., & Marsters, P. (2017). Pp 9-33 in Can coal make a comeback? *Center on Global Energy Policy*. Retrieved from <http://energypolicy.columbia.edu/sites/default/files/Center%20on%20Global%20Energy%20Policy%20Can%20Coal%20Make%20a%20Comeback%20April%202017.pdf> (24p)
- Frank (2016). Over a barrel. *Mountain West News*. Retrieved from <https://mountainwestnews.org/over-a-barrel-ec09767efea1> (16p)

RENEWABLE ENERGY

6/25: Intro to Renewable Energy

- AERO. (2008). Call to Action. Pp 1-12 in *Blueprint for Homegrown Energy Self Reliance*. Alternative Energy Resources Organization, Helena, MT. (12p)

6/26: Intro to the Grid

- Kassakian, J.G. et al. (2011). The Future of the Electric Grid. Massachusetts Institute of Technology, Energy Initiative: Cambridge, Massachusetts. (20p)
- MT DEQ. (2014). Summary Points: Montana's Electric Transmission Grid. *Understanding Energy in Montana: A Guide to Electricity, Natural Gas, Coal, Petroleum, and Renewable Energy Produced and Consumed in Montana*. (1p)

6/27: Wind & Intro to Montana Public Service Commission

- GWEC (2016). Why Wind Pp. 8-9, Wind Around the World Pp. 11-13, Future of Wind Pp 31-39 in *Global Wind Energy Outlook 2016*. Global Wind Energy Council (GWEC). (14p)
- NREL (2017). 6.8.2. Montana, Pp 92-94 in Baranowski, Ruth, et al. *2016 State of Wind Development in the United States by Region*. Technical Report NREL/TP-5000-67624 National Renewable Energy Laboratory, Golden, CO. U.S. Department of Energy, Office

of Energy Efficiency and Renewable Energy. Retrieved from <https://www.nrel.gov/docs/fy17osti/67624.pdf>. (3p)
Puckett, Karl. (2017). Developer scraps Montana wind farm over power price. *Great Falls Tribune*, 13 December. (2p)

6/28: Hydropower & Grid Reliability

NWE. (2017). Leading the way on clean energy, Pp 6-7 in *Environmental stewardship: Our commitment in Action*. Northwestern Energy (NWE). (2p)
Absaroka Energy LLC. (2017). *Gordon Butte Closed Loop Pumped Storage Hydro Facility Briefing Document*. Bozeman, MT. (4p)
Howard, Tom. (2016). Proposed pumped storage project aims to add reliability to electrical grid. *Billings Gazette*, 1 September. (4p)

Supplemental—Online

UCS (2018). How Hydroelectricity Works. Union of Concerned Scientists. Available: https://www.ucsusa.org/clean_energy/our-energy-choices/renewable-energy/how-hydroelectric-energy.html#.Wo3iF66nEdU.

6/29: Mining for Renewable Energy

Ali, Saleem H., et al. (2017). Mineral supply for sustainable development requires resource governance. *Nature*, 543, 16 March. (7p)
Solomon, Christopher. (2015). Can Montana's Smith River survive a nearby mine? *New York Times*, 17 July. (5p)
Reynolds, Brad. (ND.) The Black Butte Copper Project: Creating a Better Path Forward. Treasure State Lifestyles Montana. Retrieved from <http://treasurestatelifestyles.com/the-black-butte-copper-project-creating-a-better-path-forward/> (4p)

6/30: Solar & Net Metering

Philibert, C. (2014). Diagrams & 51-52 in *Technology Roadmap: Solar Photovoltaic Energy*. International Energy Agency (IEA), Paris. (3p)
Frank, M. (2016). Through the roof. *Mountain West News*. Retrieved from <https://mountainwestnews.org/through-the-roof-54720d8ee603> (12p)

Supplemental—Online

Solar-Estimate. (2018). Solar Calculator. Available: <http://www.solar-estimate.org/?page=solar-calculator>.
Birkby, Jeff. (2012). *Geothermal Energy in Montana: A Consumer's Guide*. Montana Department of Environmental Quality (MTDEQ), Helena, MT. Available <http://deq.mt.gov/Energy/renewableenergy/resourcesandtechnology/Geothermal/consu merguide>.

7/1: Biomass & Biofuels

AERO. (2008). Homegrown Fuels. Pp 33-46 in *Blueprint for Homegrown Energy Self Reliance*. Alternative Energy Resources Organization, Helena, MT. (14p)
Biomass Center (2009). Pellets: A Rural School District's Compact Solution. Case Studies Series: Townsend Montana School District. Retrieved from: <https://www.biomasscenter.org/images/stories/townsend.pdf>. (2p)

Supplemental-Online

IEA & FAO. (2017). *How 2 Guide for Bioenergy: Roadmap Development and Implementation*. International Energy Agency (IEA) & Food and Agriculture Organization of the United Nations (FAO), January. Available: <https://www.iea.org/publications/freepublications/publication/How2GuideforBioenergyRoadmapDevelopmentandImplementation.pdf>

CLIMATE & ENERGY POLICY

7/2: Climate Science & Policy

Marshak, S. (2015). Climate change excerpts. Pp. 862-872 in *Earth: Portrait of a Planet*, 4th ed. New York: W.W. Norton. (11p)

UNFCCC (2015). *Adoption of the Paris Agreement*. 21st Conference of the Parties, Paris: United Nations. Articles 2, 4, 5, and 14. p22-23; 29. United Nations Framework Convention on Climate Change.(4p)

7/3: Montana Energy Policy

Bullock, S. (2016). *The future of Montana electricity*. Retrieved from <http://governor.mt.gov/Portals/16/docs/2016Misc/GovBullockEnergyBlueprint.pdf?ver=2016-06-21-094142-993×tamp=1466523720534> (25p)

7/4: Ethics of Climate Change

Gardiner, Steven (2006). "The Perfect Moral Storm," *Environmental Values*, p. 397-413. (15p)

Moore, Kathleen Dean. (2016). Part I: Why it's wrong to wreck the world, in *Toward Clarity and Moral Courage in a Time of Climate Change: Great Tide Rising*, p. 17-29. (7p)

CLIMATE CHANGE IN MONTANA

7/5: Drought & Dams

Whitlock C, Cross W, Maxwell B, Silverman N, Wade AA. 2017. Executive Summary Excerpt, Pp 5-14 in: Whitlock C, Cross W, Maxwell B, Silverman N, Wade AA. 2017. *2017 Montana Climate Assessment*. Bozeman and Missoula MT: Montana State University and University of Montana, Montana Institute on Ecosystems. (9p)

NWE. (2017). Missouri River Flow Management Below Holter Dam. Northwestern Energy (NWE), June. (2p)

EIA. (2018). *Hydroelectric generation in Montana recovers from last summer's flash drought*. U.S. Energy Information Administration. (3p)

7/6: Natural Gas Development

MT DEQ. (2014). Summary Points: Natural Gas in Montana. *Understanding Energy in Montana: A Guide to Electricity, Natural Gas, Coal, Petroleum, and Renewable Energy Produced and Consumed in Montana*.(1p)

McKibben, Bill. (2016). "Global Warming's Terrifying New Chemistry" in *The Nation*, 21 pp. (10p)

Herring, Hal. (2013). The Rocky Mountain Front Blues. *High Country News*, 24 June. Retrieved from <https://www.hcn.org/issues/45.11/the-rocky-mountain-front-blues>. (4p)

7/7: Agriculture: Challenges & Opportunities

Montana Farmer's Union. 2016. Excerpt from *The Impact of Climate Change on Montana's Agriculture Economy*. Prepared by Power Consulting Inc. 24 Feb., p. 13-18. (5p)

Rosen, Julia. (2018). The carbon harvest. *Science*, 359(6377), 733-737. (7p)

Supplemental—Online

Mills-Nova, Megan, et al. 2016. *How Montana's Farmers & Ranchers can be at the forefront of Addressing Climate Change*. One Montana Report, December. Retrieved from: http://onemontana.org/sites/default/files/1Montana_Report_2016_final.pdf

7/8: Fire in the Forest

Wade, Allisa A., et al. (2017). Chapter 4: Forests and Climate Change in Montana. Excerpts Pp 149, 151-159, 172-175 in Cathy Whitlock, et al. *2017 Montana Climate Assessment*.

Bozeman and Missoula MT: Montana State University and University of Montana, Montana Institute on Ecosystems. (14p)

7/9: Social Justice

Bennett, T. M. B., N. G. Maynard, P. Cochran, R. Gough, K. Lynn, J. Maldonado, G. Voggesser, S. Wotkyns, and K. Cozzetto, (2014). Chapter 12: Indigenous Peoples, Lands, and Resources. *Climate Change Impacts in the United States: The Third National Climate Assessment*, J. M. Melillo, Terese (T.C.) Richmond, and G. W. Yohe, Eds., U.S. Global Change Research Program, 297-301. (5p)

Blackfeet Nation. (2018). Cultural Resources and Traditions Sector in *The Blackfeet Climate Change Adaptation Plan*. Retrieved from <https://blackfeetclimatechange.com/our-environment/climate-change-adaptation-plan/cultural-resources-traditions/>. (6p)

7/10: Badger-Two Medicine Natural Gas Conflict

Vest, Jay Hansford C. (1994). Sacred Geography of the Pikuni: The Badger-Two Medicine Wildlands. Pp 86-93 in David Clarke Burks, (Ed.) *Place of the Wild*. Washington D.C.: Island Press. (5p)

Blackfeet Nation. (2017). Too Sacred to Develop. Retrieved from: <http://www.badger-twomedicine.org/>. (5p)

7/11: Glacier National Park

Franz, J (2015). A race against time. *Flathead Beacon*, 2 September. (6p)

CLIMATE CHANGE SOLUTIONS

7/12: Tackling Consumption

Pett, Joel. (2009). "What if it's a big hoax...?" (1 p)

Orr, David. (2009). Chapter 7: Hope at the End of Our Tether. Pp 182-202. In *Down to the Wire: Confronting Climate Collapse*. New York: Oxford University Press. (12p)

7/13: Economic Approaches

Klein, Naomi. (2011). "Capitalism vs. The Climate," *The Nation*, November 2011. (16p)

Climate Leadership Council. 2017. *The Conservative Case for Carbon Dividends*. (6p)

Supplemental—Online

Roberts, David. (2017). "Exxon's support for a carbon tax is the first step in big oil's long, negotiated surrender." *Vox*, 27 June. Available: <https://www.vox.com/energy-and-environment/2017/6/27/15869522/exxon-carbon-tax>

7/14: Technofix- Geoengineering

Royal Society, University of East Anglica. (ND). Geoengineering Diagram. (1p)

Spotts, Pete. (2015). Can 'climate intervention' help fend off global warming? *The Christian Science Monitor*, 10 February. (4p)

Borgmann, Albert. (2012). "The Setting of the Scene: Technological Fixes and the Design of the Good Life," in *Engineering The Climate*, ed. Christopher Preston. pp. 189-199. (11p)

7/15: A Social Movement

Jensen, D. (2009). Forget shorter showers. *Orion*, Jul/Aug. Retrieved on June 9, 2015 from: <https://orionmagazine.org/article/forget-shorter-showers>. (2p)

Bonogofsky, Alexis. (2016). There are some days I don't know what to do. East of Billings. Retrieved from <http://www.eastofbillings.com/there-are-some-days-i-dont-know-what-to-do/> (2p)

Weick, K.E. (1984). Small wins: Redefining the scale of social problems. *American Psychologist* 39(1), pp 40-49. (10p)

7/16: Final Presentation

No readings.

Speakers

Alexis Bonogofsky and Mike Scott, National Wildlife Federation, Sierra Club, Ranchers
Steve Charter, Northern Plains Resource Council founder, rancher close to Signal Peak Coal Mine
Dan Fagre of USGS in Glacier National Park
Dave Galt of Montana Petroleum Association
Ed Gullick of High Plains Architecture and Northern Plains Resource Council board member
Gene Gundmunson at Spa Hot Springs Resort
Ann Hedges, Deputy Director of Montana Environmental Information Center
Hal Herring, Journalist and writer
Steve Hicks, Wind/solar installer, miner in White Sulphur Springs
Van Jamison, VP of Strategic Development at Gaelectric
Andrea Johnson, Townsend School District Superintendent
Byron Kinn, operations manager at Signal Peak Coal Mine
Tom Livers of MT DEQ
Max Milton, Former AERO board member
Mandie and Ian Reed, live off-grid with wind energy, county extension, county commission
Melissa Sladek, Glacier National Park science communication specialist
Jay Smith at Invenergy Wind Farm
Peter Wipf of the Martinsdale Hutterite Colony, works on efficiency
Elizabeth and Wilbur Wood, founders of AERO, perma-culturists, writers
Harold Yeager and Dan Lindseth of Montana Overthrust Management

Enrollment

Enrollment in this course will be limited to ten students. There are no academic prerequisites for this course. No bike touring or camping experience is required, but a reasonable level of fitness will be necessary to complete the course.

Sponsoring Organization

The Wild Rockies Field Institute (WRFI) is an independent, nonprofit educational organization founded in 1993. Our mission is to broaden the nature of a liberal arts education; teach critical thinking about social and environmental issues; to foster understanding of and respect for natural and human communities; and to cultivate a sense of place that encourages personal, social and environmental responsibility. WRFI courses seek to understand the complex relationships between ecological processes and human actions. To varying degrees within each course, students study local ecology, policies directing public lands management, and ethics that underlie social relationships to the land. Our courses combine traditional classroom teaching methods – including lectures, readings, discussions, papers, and exams – with experiential explorations of the landscapes and communities we visit. We encourage careful observations, critical thinking, thoughtful dialogue, and exploration of diverse perspectives in order to develop the capacity for engaged citizenship in our students.

Wild Rockies Field Institute; P.O. Box 7071, Missoula, MT 59807. (406) 549-4336