



Greetings!

This Summer 2015 Bulletin includes:

- 1) Summer 2015 Course Information:
 - ✓ date, time and place
 - ✓ materials and textbooks
 - ✓ physical requirements
- 2) City of Bozeman Information
- 3) Bozeman and Surrounding Area Activities
- 4) Restaurants

Diana Paterson, the MSSE Associate Director, coordinates summer campus class registration. She can be reached at dianap@montana.edu or (406) 994-5679. She is wonderfully helpful and can answer last minute registration questions.

We hope you have made housing reservations. Summer campus housing details are outlined at the MSSE website: <http://www.montana.edu/cs/accommodations.php> The MSSE dorm is Hannon Hall. You must make an advanced reservation and expect to pay for housing at the time of check in. The rates are \$28/night for a single and \$46/night for double occupancy. Pets are not allowed in any campus housing.

If you are in Bozeman for longer than 30 days, you may contact Family and Graduate Housing for apartments and houses at fgbo@montana.edu or call (406) 994-3730 for more details. There are a number of housing options for single students and students with families. **Please submit your application as soon as possible during the spring semester, as space is very limited. There is a \$100 application fee.**

Other housing options are summer vacation rentals. Here are a few helpful sites:

<https://www.airbnb.com/s/Bozeman--United-States>

<http://www.bozemancottage.com/>

<http://www.vrbo.com/vacation-rentals/usa/montana/yellowstone/bozeman>

When you arrive on campus, pick-up your “CAT Card” in the Strand Union Building (SUB) at the CAT Card Office located on the basement level. Save your CAT Card as it becomes your library card, gym pass, debit card (if you deposit funds on account). This photo ID is good for life!

Questions regarding federal financial aid eligibility and completion of the Free Application for Federal Student Aid (FAFSA) should be directed to the Office of Financial Services at Montana State University (phone 406-994-2845). General financial aid information is available at www.montana.edu/wwwfa .

All Valley Cab company (406-388-9999) charges about \$34 for a taxi from the airport to the center of campus, with additional persons at \$4 each. MSU does not have an airport shuttle service.

If you are taking field classes this summer, you will need clothing and footwear appropriate for mixed-weather and rugged terrain. Several classes will travel into high altitude back country areas where dressing in layers for changing weather conditions is critical. For any trip into the mountains, carry plenty of water, snacks (lunch for all day outings), hat, sunscreen, sunglasses, insect repellent, rain/wind protective jacket, warm layer of clothing, and solid-shoes or boots. A hand lens, notebook, pencil & pens (waterproof), and day pack (to carry everything) is helpful. Specific course requirements are enclosed. **If you require an accommodation because of a disability, please contact the MSSE Office.**

Everyone is invited to attend the **Seventeenth Annual Symposium in Science Education**, July 6th -10th, 2015 in Reid Hall, rooms 101 and 102. The symposium is open to the public and includes Capstone Project Presentations by the 2015 MSSE degree candidates. **The 2015 Graduation Dinner is scheduled for Friday, July 10th.** This party is a social for all MSSE students, alumni, family, friends and faculty to honor graduates. A request for rsvp numbers from graduates will be sent out late spring.

Social Schedule

<u>Date</u>	<u>Time</u>	<u>Place</u>	<u>Activity</u>
Tuesday, June 23 Tuesday, June 30	7:30-8 am 7:30-8 am	406 Linfield Hall 406 Linfield Hall	Continental Breakfast Continental Breakfast
Monday, July 6 Friday, July 10	7:00-8 am 6-9 pm	Reid Hall 105 SUB Ballroom	Capstone Orientation Breakfast Graduate Dinner
Monday, July 13 Monday, July 20	7:30-8 am 7:30-8 am	406 Linfield Hall 406 Linfield Hall	Continental Breakfast Continental Breakfast

Feel free to contact us with any questions or concerns. We look forward to seeing you this summer when you arrive on campus. Be sure to stop by Linfield Hall Room 403 to visit!

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Welcome to Bozeman!

Home of Montana State University, Bozeman is located in the heart of the scenic Gallatin Valley and is renowned for its summer activities. Surrounded by four mountain ranges, thousands of acres of national forest, and hundreds of miles of blue ribbon trout streams, the area offers endless recreation opportunities such as:

- ✓ Hiking & backpacking
- ✓ Rock climbing
- ✓ Mountain biking
- ✓ Fly fishing
- ✓ River rafting, kayaking, and canoeing
- ✓ Wildlife viewing
- ✓ Photography
- ✓ Yellowstone National Park

Bozeman's climate reflects its mountain valley location. Summers are pleasant with warm days, cool nights, and an abundance of sunshine. City attractions include quaint shopping experiences, restaurants and coffeehouses, and museums. Ten city parks with picnic and playground areas, tennis courts, indoor and outdoor swimming pools, skateboard facilities and BMX bike park, four golf courses in the city and surrounding areas.

bozeman.net

Campus Facilities and Activities

Parking Permits

You will need to purchase a permit if you plan to park a car on campus. Daily passes can be purchased for \$3 per day and are available at the University Police Department or Hannon Hall.

montana.edu/parking

Campus Maps:

montana.edu/campusmap

Hosaeus Fitness Center

Guest passes are available for \$8 per day or \$22 per week. Facility features pool, free weights area, climbing wall, group fitness classes, tennis courts, racquetball courts, indoor running track, cardio area, saunas, and locker rooms. Closed on the 4th of July.

montana.edu/getfit

MSU Recreation Center

A social gathering place, bowling, billiards, foosball, videos, tournaments, and classes. Located in the MSU Strand Union Building.

montana.edu/subrec

Outdoor Recreation Program (SOB Barn)

ASMSU's Outdoor Recreation Program (406-994-3621) offers equipment rentals, coordinated group outings, an outdoor resource center. Students and their families are eligible to rent equipment. Rafts, canoes, tents, bicycles and other outdoor gear are available. Rates are based on half-day, daily, or weekends. Maps, magazines, trail guides, and informational materials are available. This is a great option for equipment rentals for your summer field courses.

montana.edu/outdoorrecreation

Phasmid Rentals

You can also rent gear (and vehicles if you want to plan a trip) from Phasmid Rentals (406-922-0179). They are located near the airport and specialize in any item you might need for your Montana stay. They even rent bear spray!

phasmidrentals.com

Community Services and Activities

Bozeman City Bus Service

Streamline Bus Company moves people around Bozeman or the Gallatin valley quickly and conveniently and best of all, riding on Streamline is **free**. Routes stretch from the MSU campus to downtown and surrounding communities. Brochures are available at Hannon Hall and at the "ASK US" Information Center in the MSU Strand Union Building.

streamlinebus.com

Museum of the Rockies

The world-renowned Museum of Rockies features one of the finest paleontology collections in North America. The museum offers 2- Day and week-long summer camps for children, grades 1st through 5th. Camp activities will focus on paleontology, astronomy and space. The museum also has a discovery center for younger children ranging in age from infant to 6 years. For more information:

museumoftherockies.org

American Computer Museum

The museum is open every day 10:00 am to 4:00 pm and admission is free. Check their website for current exhibits.

compustory.com

Children's Museum of Bozeman

A great place for little ones to play and learn. The museum is open Monday to Saturday 10:00 am to 5:00 pm.

cmbozeman.org

Bozeman Recreation Department

This Bozeman Recreation Department offers a variety of programs, special events and recreation classes such as soccer, cooking, Castles & Knights, basketball, canoeing and Kayaking, Nature Discovery, Outdoor Adventure Skills and more. Also find information on The Bozeman Swim Center:

bozeman.net

Bozeman Public Parks

The city is loaded with wonderful public parks. One special park for smaller children is the Dinosaur Park. It is a great place to soak up some sunshine, picnic, and play.

dinosaurplayground.org

Shakespeare in the Parks

Montana Shakespeare in the Parks is a theatrical group presenting live, professional theatre productions in the MSU Park. For more information:

montana.edu/shakespeare

Music Events

Lunch on the Lawn features a variety of musical styles including blues, jazz, polka, bluegrass and more. Join other music lovers on the Emerson lawn, 111 Grand Avenue on Wednesday 11:30 am to 1:30 pm.

Music on Main occurs every Thursday evening, July – mid August, from 6:30 pm to 8:30 pm, downtown Bozeman comes alive by featuring a different musical group from an eclectic range of talent. Local restaurants and food vendors join the festival by providing an assortment of dinner options, drinks, and treats.

Farmers Market with Arts and Crafts

Bogert Farmer's Market

Gather, socialize, and share with others the Bogert Farmers' Market held every Tuesday evening from 5:00 pm to 8:00 pm. Locally grown produce, arts, crafts, music, food, family activities and more are featured at Bogert Park, South Church Avenue.

Gallatin County Fairgrounds

Every Saturday morning from 9:00 am to 12:00 noon (June-September) at the Gallatin County Fairgrounds, join the public and enjoy fresh fruit and vegetables, baked goods, arts and crafts.

Downtown Art Walk

The second Friday of the month from June through August from 6:00 pm to 8:00 pm, stroll downtown while the art galleries and shops stay open late to showcase featured artists.

Bozeman Bowl

Open every day from 9:00 am till late. Located at: 414 E Babcock Street. Call 406.586.5018 for more information.

Gallatin County Fair Grounds

The Gallatin County Fair runs July 15th through the 19th. The five day event includes: The Bozeman Roundup Ranch Rodeo, Dog Dock Diving, Pig Wrestling, Mutton Bustin, Arts & Crafts Shows, Livestock Shows, and classic fair cuisine.

gallatincountyfair.com

Spire Climbing Center

A 6000 square foot state of the art roped climbing center for youths and adults.

spireclimbingcenter.com

Websites for Outdoor Activities

Gallatin National Forest

fs.fed.us/r1/gallatin

Montana Fish, Wildlife & Parks

fwp.mt.gov

Bozeman Chamber of Commerce website contains information on the Bozeman area activities including backpacking, horseback riding, fly fishing, golfing, shopping, hiking, biking, and Yellowstone National Park information.

bozemanchamber.com

Bozeman Area July 4th Events

Bozeman

Watch the fireworks at the Bozeman Fairgrounds. Starting at 9:00 pm, head to the fairgrounds for food and music, and then watch one of the largest firework displays in Montana at dusk. Another favorite spot to watch the fireworks is on top of Peet's Hill/Burke Park.

Livingston

The Livingston Roundup Rodeo begins on July 2nd and runs through the 4th. This three day festival kicks off with a parade down Main Street. Professionals and amateurs from around the country gather for the rodeo and compete. For rodeo ticket information, visit:

livingston-chamber.com

Big Sky

Music in the Mountains: Free July 4th events (music, vendors, and fireworks) at Center Stage at Town Center Park in Big Sky. Registration for the events begins at 9:00 am and includes a 5 mile and 10 mile mountain bike ride, tennis, 1k kids run/walk, kid's activities, duck race, flag football, and a disk golf tournament. There is also a BBQ from 11:00 am to 2:00 pm, with proceeds going to the parks committee. Then in the evening, a band will play and there will be a fireworks display. For more information:

bigskyarts.org

Virginia City

Weekend events before the 4th of July include historic demonstrations, food and contests. Also, on the 4th there will be a firework display at dusk. For more information:

virginiacity.com

Ennis

Ennis Rodeo & Fourth of July Parade on Main Street. For more information:

ennischamber.com

Area Hot Springs

Bozeman Hot Springs

Open Mon-Thurs 6:00 am -11:00 pm; Fri 6:00 am - 4:30 pm; Sat 5:30pm – 11:00 pm; Sun 8:00 am -11:00 pm, \$8.50/adult, \$7 with MSU ID (Cat Card)

bozemanhotsprings.com

Chico Hot Springs

Open 8:00 am – 11:00 pm Daily; \$7.50/person

chicohotsprings.com

Norris Hot Springs

Open 10am to 10pm, closed Tuesday; \$7/adult

norrihotsprings.com

Area Attractions

Yellowstone National Park

Only a 1.5 hour drive from Bozeman, a day trip to Yellowstone is an unforgettable activity when visiting the area. Find all the information you need here:

nps.gov/yell

Grizzly & Wolf Discovery Center

A wildlife park and educational facility located in West Yellowstone. The center allows you to observe grizzlies playing in a waterfall, fishing in their ponds, and see the social structure of two wolf packs.

grizzlydiscoveryctr.org

Local Hiking Trails

Find information about beautiful day hikes and other local recreation through the Outside Bozeman:

outsidebozeman.com/places/trails

Missouri Headwaters State Park

Visit the confluence of the Jefferson, Gallatin, and Madison Rivers that come together to start the great Missouri River. Find information on Lewis & Clark Caverns, Buffalo Jump State Park and much more.

stateparks.mt.gov/missouri-headwaters

**MSSE**

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montana.edu/msse

Summer 2015 Campus Course Information

BIOE 520 Understanding & Managing Animal Biodiversity in the Greater Yellowstone Ecosystem

BIOE 522 Birds of Prey

BIOE 523 Wildlife Ecology of the Northern Rocky Mountains

BIOE 591 Alpine Ecology

BIOE 591 Land Use Issues in the Greater Yellowstone Ecosystem

CHMY 594 Science Lab Safety and Risk Management

CSCI 591 Computer Science in the Classroom: An Introduction to Computational Thinking

EDCI 575 Professional Capstone Paper and Symposium in Science Education

EELE 591 Solar Cell Basics for Science Teachers

ERTH 516 Northern Rocky Mountain Geology

ERTH 591 Geology of Glacier National Park

ERTH 594 Geology Seminar: Geology of Mars

GEO 521 Dinosaur Paleontology I

GEO 522 Dinosaur Paleontology II

LRES 557/MB 547 Thermal Biology in Yellowstone Park

LRES 569 Ecology of Invasive Plants in the greater Yellowstone Ecosystem

LRES 591 Lake Ecology

MB 591 Project Microbe

PHSX 401 Physics by Inquiry I

PHSX 403 Physics by Inquiry III

PHSX 591 Teaching Electricity and Magnetism Using Research-Based Curriculum

PSPP 548 Flowering Plants of the Northern Rocky Mountains

PSPP 591 Plants, People, and Health

Summer 2015 Campus Course Information

June 15-19, 2015

CSCI 591 Computer Science in the Classroom: An Introduction to Computational Thinking (2 cr)

Class: MTWRF 8-5pm

Location: EPS 254

Field Trips: None

Instructor: John Paxton, Computer Sciences

Textbook Requirement: Materials provided by instructor.

June 22-26, 2015

BIOE 520 Understanding & Managing Animal Biodiversity in the Greater Yellowstone Ecosystem (2 cr)

Class: M 8:30 am to 12 Noon; Lunch break; Afternoon Field Trip 1:00 to 5:00 pm

Location: Lewis Hall, Room 304

Field Trips: TWRF 8:00 am – 5:00 pm

Instructor: Jay Rotella, MSU Ecology Department

Textbook Requirement: Materials provided by instructor.

Physical Fitness Requirement: Field trips require walking up to 2 miles on moderate slopes on established trails.

GEO 521 Dinosaur Paleontology I (2 cr)

Class: MTWRF Depart Monday 8:00 am for Field Camp at Makoshika State Park. Return Saturday, June 27, 2015.

Location: Meet van at MSU Strand Union Building, South Entrance

Instructor: Dan Lawver, oversight provided by Frankie Jackson, MSU Earth Sciences Department

Textbook Requirement: Materials provided by instructor.

Facilities: Individual cabins that are rustic but completely furnished and accommodate 4-6 students, a lodge where meals will be provided, and a separate shower house with toilet facilities. Students should bring a sleeping bag or other bedding and personal items such as towels, showers shoes, etc. Space for tent camping is also available. Special dietary requirements should be noted on the registration form. Students should have appropriate hiking boots and be prepared for rain and cool weather. Additional required items include backpack, field notebook and pencils, and water containers (3-4 liters total capacity).

Physical fitness requirements: The course requires moderate to strenuous outdoor physical activity. Students are expected to walk several miles, at a reasonable pace in order to keep up with the group, often in relatively steep terrain without established hiking trails. Temperatures are often in the 90°F range. Please contact the MSSE office before signing up for the class if you have concerns about the required physical fitness level and your ability to meet these requirements.

PHSX 401 Physics by Inquiry I (3 cr) (1st Week)

Class: MTWRF 9:00 am to 5:00 pm

Location: EPS Building, Room 110

Instructor: Dr. Gregory Francis, MSU Physics Department

Textbook Requirement:

Author: McDermott and Shaffer

Title: *Physics by Inquiry, Volume 2*

Publisher: Wiley

ISBN #: 9780471548706

Text available through MSU Bookstore (888)-247-2546

PSPF 548 Flowering Plants of the Northern Rocky Mountains (2 cr)

Class: MT 9:00 am to 4:00 pm

Field Trips: WRF 9:00 am to 4:30 pm

Location: Plant Growth Center, Room 214

Instructor: Robyn Klein, MSU Plant Sciences and Plant Pathology Department

Textbook Requirement:

Author: Harris, James and Harris, Melinda

Title: *Plant Identification Terminology: An Illustrated Glossary*

Publisher: Spring Lake Publishing

ISBN #: 978-0964022164

Text available through MSU Bookstore (888)-247-2546

Physical Fitness Requirement: Field trips require walking up to 2 miles on moderate slopes.

June 27, 2014

ERTH 594 Geology Seminar: Geology of Mars (1 cr)

Class: Sat 8:00 am to 5:00 pm

Location: Gaines Hall 143 (Lab Gaines 140)

Instructor: Dave Lageson, MSU Earth Science Department

Required supplies:

Segments of this course will involve hands-on interpretation of geologic (geomorphic) features on Mars. Therefore, students should come prepared with a few basic drawing and coloring supplies:

- Colored pencils and/or colored markers
- Mechanical pencil and eraser
- Ruler
- Notebook paper (for taking notes and/or making sketches)

June 27-28, 2014

MB 591 Project Microbe (1 cr)

(This course will be offered at a flat \$100 rate)

Class: 8am – 5pm

Location: AJM Johnson Hall 147 (formerly 121)

Instructors: Mark Young and Rachel Whitaker, MSU Microbiology Department

Textbook Requirement: Materials provided by instructor.

June 29- July 3, 2015

BIOE 523 Wildlife Ecology of Northern Rocky Mountains (2 cr)

Class: M 8:00 am- 5:00 pm

Location: Lewis Hall, Room 407

Field Trips: Depart at 6:00 am Tuesday for 3 nights, return Friday

Instructor: Dave Willey, MSU Ecology Department

Textbook Requirement: Materials provided by instructor.

Students are expected to provide the following minimum equipment for their camping needs:

1. One-or two-person, light-weight, non-bulky tent (no big, heavy “family” tents- we don’t have room for these); team up with another student to share a two-person tent if possible.
2. Sleeping bag and pad (no bulky air mattresses)
3. Basic cooking equipment & utensils (team up with another student). No big Coleman stoves or lanterns (bring small, lightweight, back-packing equipment)
4. Minimal clothing for one week (layers for hot and cold weather)
5. Largest can available of bear “pepper spray” (active ingredient = capsaicin)
6. Personal toiletries, sunglasses, hat, daypack, water bottle, sunscreen, camera, field notebook and pen, etc.
7. Food for 1 day (we will restock food supplies on a daily basis, or as needed)
8. Large coolers will be provided for perishable food.

Physical Fitness Requirements: The course requires moderate outdoor physical activity. Students are expected to walk several miles, often in relatively steep terrain without established hiking trails. Please contact the MSSE office before signing up for this class if you have concerns about the required physical fitness level and your ability to meet these requirements

ERTH 516 Northern Rocky Mountain Geology (2 cr)

(Contact MSSE office for registration)

Class: MTWRF 8-5pm Daily field trips, departure 8:00 am

Location: Meet van at MSU Strand Union Building, South Entrance

Instructor: Dave Lageson, MSU Earth Sciences Department

Textbook Required: Materials provided by instructor

Physical fitness requirements: In order to study the geology of southwest Montana in the field, this course will involve moderate outdoor physical activity. Many of our stops will be at outcrops by the side of the road (involving very little hiking), but in some instances we will need to hike in order to visit key outcrops and/or make key geologic observations. Most hikes will be fairly short (less than five miles) and on reasonably well-developed trails, but off-trail hiking may also be necessary. Furthermore, the hiking terrain may be steep and rocky at times; Elevations will range from 5,000 to 9,000+ ft. Interested students should contact Diana in the MSSE office to register for the course and to communicate their ability to meet the physical fitness requirements for the course. Please email Diana at dianap@montana.edu.

June 29- July 3, 2015 (cont.)

LRES557/MB 547 Thermal Biology in Yellowstone Park (2 cr)

Class: MTWRF 9:00 am to 5pm

Location: Gaines Hall, Room 143 (Lab Gaines Hall 249)

Field Trip: Depart Wednesday 8:00 am; Return Thursday 6:00 pm (Tent camping)

Location: Meet van at MSU Strand Union Building, South Entrance

Instructor: Brent Peyton, MSU Chemistry Department; Christine Smith, Thermal Biology Institute

Textbook Requirement: Students to purchase book from instructor (\$20)

Students are expected to provide the following minimum equipment for their camping needs:

- Sleeping bag and pad
- Personal toiletries, sunglasses, hat, daypack, water bottle, sunscreen, camera, field notebook and pen, etc.
- Clothing for hot and cold weather (warm hat and coat, shorts and sun hat).
- Good hiking shoes (no open toed shoes).

Physical fitness requirement: Field trips will require walking distances of up to 5 miles with moderate slopes at high elevation (7000 ft.) and will involve being in the field for the majority of the day. Weather may vary!

PHSX 401 Physics by Inquiry I (3 cr) (2nd Week)

Class: MTWRF 9:00 am to 5:00 pm

Location: EPS Building, Room 110

Instructor: Dr. Gregory Francis, MSU Physics Department

Textbook Requirement:

Author: McDermott and Shaffer

Title: *Physics by Inquiry, Volume 2*

Publisher: Wiley

ISBN #: 9780471548706

Text available through MSU Bookstore (888)-247-2546

PSPP 591 Plants, People, and Health (2 cr)

Class: MTWRF 9 am – 4 pm

Field trips: T 10:45 am – 1:00 pm

Location: Plant Growth Center, Room 214

Instructor: Robyn Klein, MSU Plant Sciences and Plant Pathology Department

No textbook Requirement.

The following book is recommended:

Author: James Green

Title: *The Herbal Medicine-Maker's Handbook: A Home Manual*

Publisher: Clarkson Potter/Ten Speed/Harmony

ISBN-13: 9780895949905

<http://www.barnesandnoble.com/w/the-herbal-medicine-makers-handbook-james-green/1111611314?ean=9780895949905>

July 6-10, 2015

BIOL 591 Land Use Issues in Greater Yellowstone Ecosystem (2 cr)

(Symposium presenters will not be able to participate in this course.)

Class: M 8:00 am to 1:00 pm

Location: Lewis Hall 205

Field Trips: M 1:00 pm to 5:00 pm, TWR 8:00 am- 6:00 pm

Instructor: Jerry Johnson, MSU Political Science and Ecology Departments

Textbook Requirement: Materials provided by instructor

CHMY 594 Science Lab Safety & Risk Management (1 cr)

Class: MTWR 1:00 pm to 4:00 pm

Location: Chemistry and Biochemistry Building Room #3

(CHBCH #3) Instructor: Steve Holmgren, MSU Chemistry Department

Textbook Requirement: Materials provided by instructor

July 6-10, 2015 (cont.)

EDCI 575 Professional Capstone Paper and Symposium in Science Education (3 cr)

(Graduate Candidates Only)

Class: MTWRF 7:00 am to 5:00 pm

Location: Reid Hall, Rooms 101, 102

Instructor: Peggy Taylor, MSU IPSE Department

Textbook Requirement: None

LRES 569 Ecology of Invasive Plants (2 cr)

(Symposium presenters will not be able to participate in this course.)

Class: MTWRF 8:00 am to 5:00 pm

Location: ABS Hall Room 238 from 8 am to 11 am; ABS 234 from 12 Noon to 5 pm

Field Trips: Depart Monday, return Friday

Instructor: Bruce Maxwell, MSU Land Resources and Environmental Science Department

Textbook Requirement: Materials provided by instructor.

July 12-16, 2015

GEO 522 Dinosaur Paleontology II (2 cr)

Class: MTWRF, Depart Monday 8am for Field Camp at Egg Mountain, Choteau, MT, Return Friday night.

Location: Meet van at MSU Strand Union Building, South Entrance

Instructor: Dan Lawver, oversight provided by Frankie Jackson, MSU Earth Sciences Department

Textbook Requirement: Materials provided by instructor.

Facilities: Students will be camping with the regular paleontology field crew under rustic conditions. Please provide your own tent, sleeping bag, and thermarest. These items can also be rented through the MSU Outdoor Recreation Center. Cooking equipment and dishes are provided, and a travel trailer is used for meal preparation. Toilet facilities are limited to outhouses. Showers are available in town. Students should have appropriate hiking boots and be prepared for rain and cool weather. Additional required items include backpack, field notebook, pencils, and water containers (3-4 liters total capacity).

Physical fitness requirements: The course requires moderate outdoor physical activity. Students are expected to walk several miles, typically without established hiking trails. Temperatures are often in the 90 degree range. Please contact the MSSE office before signing up for this class if you have concerns about the required physical fitness level and your ability to meet these requirements.

July 13-17, 2015

BIOE 522 Birds of Prey (2 cr)

Class: M 8:00 am to 12 Noon; Lunch break; Afternoon 1:00 to 5:00 pm

T 8:00 am to 12 Noon, Afternoon Field Trip 1:30-5pm (Ringling)

W 8:00 am to 12 Noon, Leave for overnight trip 1:30pm (Jack Creek)

Location: Lewis Hall, Room 407

Field Trips: T 1:30-5pm, Leave W 1:30pm, return Friday 3pm

Instructor: Dave Willey, MSU Ecology Department

Textbook Requirement:

Author: Dunn and Alderfer

Title: *National Geographic Field Guide to the Birds of North America, Sixth Edition*

Publisher: National Geographic; 6 Rev Upd edition (November 1, 2011)

ISBN: 9781-4-26-20828-7

Physical Fitness Requirement: Field trips require walking up to 2 miles on moderate slopes and an overnight stay in Jack Creek.

EELE 591 Solar Cell Basics for Science Teachers (2 cr)

Class: MTWRF 8:00 am- 5:00 pm

Location: Cobleigh Hall, Room 632

Instructor: Todd Kaiser, MSU Electrical Engineering Department

Textbook Requirement: Materials provided by instructor.

July 13-17, 2015 (cont.)

PHSX 401 Physics by Inquiry III (3 cr) (1st week)

Class: MTWRF 9:00 am to 5:00 pm

Location: AJM Johnson Hall, Room 121

Instructor: Dr. Gregory Francis, MSU Physics Department

Textbook Requirement:

Author: McDermott and Shaffer

Title: *Physics by Inquiry, Volume 2*

Publisher: Wiley

ISBN #: 9780471548706

Text available through MSU Bookstore (888)-247-2546

July 20-24, 2015

BIOL 591 Alpine Ecology (2 cr)

Field Trip: M-F Depart 6:00 am – Return Friday pm. Overnight stay at Jack Creek Preserve. (Prior to start of course, instructor will provide information regarding meeting and departure times on D2L)

Location: Monday 6 am meet van at MSU Strand Union Building, South Entrance.

Instructor: John Winnie, MSU Ecology Department

Textbook Information: Course materials provided by instructor online in D2L by June 15.

Physical and Gear Requirements: The field component of this class is substantial, and teacher-participants should be prepared to spend the better part of each day hiking and doing field work in moderately rugged terrain at high elevations (>6000').

Participants should be able to hike several miles at a stretch and be comfortable spending full days in the field.

This means having and carrying the following field gear:

- A light, comfortable day pack into which all this gear will fit
- Bear repellent - immediately accessible in a holster on your pack belt **Required!** But please note that you cannot fly with this item in your bag, so you will need to purchase it when you arrive in Bozeman.
- Comfortable, all-weather, sturdy, above-the-ankle hiking boots - no tennis shoes!
- Lightweight rain gear, preferably breathable
- Mid weight fleece or wool pullover or sweater
- Sunglasses, Hat, Sun screen
- High energy snack food & a lunch to keep you going for a full day on the trail. All food should be double-bagged in zipper- style bags
- 1 or 2 1L water bottles, or a Camelbak style bladder with drinking hose
- First aid kit
- Headlamp or flashlight with spare batteries
- Binoculars
- Field notebook and pencils. Rite-in-the-Rain, or similar notebooks are best. Usually available at the MSU bookstore
- Compass, and if you have one, a GPS
- Personal toiletry and first aid kit containing any necessary medications

If you have a medical condition that could present as an emergency in the field, you must notify the MSSE program before signing up for this class. We will be operating in a remote area with unreliable, and at times, no cell service, so emergency services will be delayed.

Equipment can be rented at the Outdoor Recreation Program (SOB Barn) on campus: <http://www.montana.edu/outdoorrecreation>

LRES 591 Lake Ecology (2 cr)

Class: ABB 238. M 9:00 am to 5:30 pm, T 8:30 am-10:30 am, F 1:00 pm-5:00 pm Gaines 18

Class Lab: Gaines 18. R 2:30 pm-5:00 pm, F 9:00 am-noon

Field Trip: Tuesday Departure at 10:15 am, Return 2:00 pm Thursday

Location: Meet van at MSU Strand Union Building, South Entrance

Instructors: Stephanie McGinnis, MSU Land Resources and Environmental Science Department (LRES Dept.)

Textbook Requirement: Materials provided by instructor.

Students are expected to provide the following minimum equipment for their camping needs:

- Sleeping bag and pad
- Personal toiletries, sunglasses, hat, daypack, water bottle, sunscreen, camera, field notebook and pen, etc.
- Clothing for hot and cold weather (warm hat and coat, shorts and sun hat).
- Good hiking shoes (no open toed shoes). Weather may vary!

July 20-24, 2015 (cont.)

PHSX 403 Physics by Inquiry III (3 cr) (2nd week)

Class: MTWRF 9:00 am to 5:00 pm

Location: AJM Johnson Hall, Room 121

Instructor: Gregory Francis, MSU Physics Department

Textbook Information:

Author: McDermott and Shaffer

Title: *Physics by Inquiry, Volume 1 & 2*

Publisher: Willey

ISBN #: 9780471548706

Text available through MSU Bookstore (888)-247-2546

July 25- 31, 2015

ERTH 591 Geology of Glacier National Park (2 cr)

Class: Welcome BBQ Saturday 25th 6pm, SuMTWRF.

Location: Meet van at MSU Strand Union Building, South Entrance

Field trip: Depart Sunday morning for Glacier National Park, return Friday mid-day.

Instructor: Dr. Richard Diecchio, Professor of Geology, George Mason University

Textbook requirement: Materials provided by instructor

Physical fitness requirements: In order to study the field geology of Glacier National Park, this course will involve very strenuous outdoor physical activity. Students are expected to hike several miles at high elevations in rough, rocky, mountainous terrain in order to accomplish course goals, namely hands-on field experience with geologic observations and interpretations. To assure that all students will have the full benefit of the program, please contact the MSSE Office before signing up for this class if you have concerns about the required physical fitness level and your ability to meet the expectations of this course. If you require an accommodation because of a disability, please contact the MSSE Office.

PHSX 591 Teaching Electricity and Magnetism Using Research-Based Curriculum (2 cr)

Class: MTWRF 9:00 am- 12:00 pm & 2:00 pm- 5:00 pm

Location: AJM Johnson Hall, Room 121

Instructor: Greg Francis, MSU Physics Department

Optional Textbook:

Author: McDermott and Shaffer

Title: *Tutorials in Physics and Homework Package*

Publisher: Prentice Hall, 2002

ISBN #: 9780130970695

Text available through MSU Bookstore (888)-247-2546

Where to eat while in Bozeman....

Restaurants in the Historic Downtown Area

14 North- 14 N. Church Ave.

Blackbird – 140 E. Main St.

Burger Bob’s – 39 W. Main St.

Cateye Café – 23 N. Tracy Ave.

Copper – 101 E. Main St.

Dave’s Sushi - 115 N. Bozeman Ave.

Emerson Grill – 207 W. Olive St.

Fin- 211 E. Main St.

Francais de Arts – 25 S. Tracy Ave.

Fresco Café – 317 E. Mendenhall St.

Garage – 451 E. Main St.

John Bozeman’s Bistro – 125 W. Main St.

MacKenzie River Pizza – 232 E. Main St.

Montana Ale Works - 611 E. Main St.

Naked Noodle - 27 S. Wilson Ave.

Nova Café – 312 E. Main St.

Open Range- 241 E. Main St.

Over the Tapas – 19 S. Willson Ave.

Pita Pit – 246 E. Main St.

Plonk – 29 E. Main St.

Pour House – 15 N. Rouse Ave.

Rice- 140 E. Main St.

Starky’s – 24 N. Tracy Ave.

Sweet Chili Asian Bistro – 101 E. Main St.

Tacos Del Sol- 17 S. Tracy Ave.

Ted’s Montana Grill – 105 W. Main St.

Restaurants within Walking Distance of Campus

Bridger Brewing Company- 1609 S. 11th Ave.

College Street Café & Grille – 815 W. College St.

Columbo’s Pizza and Pasta – 1003 W. College St.

I-Ho’s Korean Grill – 1216 W. Lincoln St.

Granny’s Gourmet Donuts- 3 Tai Lane

Pickle Barrel- 809 W. College St.

Rosa’s Pizza – 123 W. Kagy Blvd.

Sola Café – 290 W. Kagy Blvd.

Grocery Stores near MSU Campus

Community Food Co-Op – 908 W. Main St.

Heeb’s East Main Grocery – 544 E. Main St.

Joe’s Parkway Market – 903 W. College St.

Rosauers – W. Main St. across from Gallatin Mall

Safeway - 901 W. Main St.

Town & Country Foods – S. 11th & Lincoln St.