

# AU SABLE INSTITUTE OF ENVIRONMENTAL STUDIES



## OFFICIAL BULLETIN 2007

Great Lakes - Pacific Rim - South Florida - India

# 2007

## Au Sable Institute of Environmental Studies

**Au Sable - Great Lakes**  
Great Lakes Forest, Michigan

**Au Sable - Pacific Rim**  
Puget Sound, Washington

**Au Sable - South Florida**  
North Fort Myers, Florida

**Au Sable - India**  
Tamil Nadu, South India

### OFFICIAL BULLETIN NO. 27

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*Au Sable Institute is a not-for-profit 501(c)(3) institution under the U.S. Internal Revenue code and as such is eligible to receive tax-deductible contributions for its operations and programs. Of its approximately \$1,200,000 annual budget, about \$500,000 comes from tuition and fees; the remainder comes from gifts and grants. The Institute welcomes gifts from any who wish to share in the fulfillment of its mission or the conduct of specific projects or programs.*

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**A Note about the Paper on which this Bulletin is printed—**

*This Bulletin is printed on **Domtar Sandpiper** paper. It is made from 100% post-consumer waste that is not de-inked or bleached; it incorporates the clays and inks of the old paper into the new. The process for its manufacture differs from that of most other recycled papers by using less water, fewer chemicals, and producing less solid waste. The result is this attractive, randomly speckled 100% post-consumer recycled paper.*

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# 2007

# OVERVIEW

**Purpose and Setting.** Au Sable Institute was founded to bring wholeness and healing to the biosphere and the whole creation. It achieves this purpose through academic programs for college and university students, research projects and fora, environmental education for local school children, and environmental information services for faith-based institutions, environmental organizations and agencies, and the wider world community. Supported by the natural settings of the Great Lakes forest of northern Michigan, the Puget Sound in the Pacific Northwest, and the sub-tropical environments of south Florida, participants take courses, engage in scholarship, gain field experience, confer, and develop practical tools for environmental stewardship in programs that take seriously both science and theology.

**Vocation, and Professional Certification.** To achieve the full vocational benefits of the Institute, students are advised to complete an integrated program that leads to an official Institute Certificate. Certificate students are given preference on course selection, fellowships, and financial aid.

**Student Life.** Au Sable is a community based upon Christian teachings and practices, working and worshipping together as it seeks to bring a caring keeping to the Creation. Class periods and meals begin with devotions, students and faculty families participate in Sunday vesper services, and students can worship regularly in churches of their choice. Recreation includes wildlife observation, nature study, wildland and tidepool exploration, volleyball, cross-country skiing, snowshoeing, and snorkeling.

**Relation to the Home College, University, or Seminary.** Persons enrolled in the Institute remain students at their home institution. Most enroll through accredited "Participating Colleges" who control admission to Institute courses and programs, award college credit, and collect tuition and fees. Others enroll through public and private colleges, universities, and seminaries.

**Undergraduate Research Participation.** The Institute offers a full summer program in research for undergraduates on its Great Lakes and Pacific Rim campuses.

**Fellowships and Financial Aid.** Students from all Participating Colleges are eligible for financial aid in the form of Au Sable Fellowships (50% tuition

grant) or Institute Grants-in-Aid (\$400-600). Honors Scholarships of US \$500 and Au Sable Stewardship Awards of US \$400 are also granted to returning students who qualify. One Leadership Fellowship is given annually to a student nominated by a Participating College that covers tuition, fees, books, and travel. In addition, the Institute administers a Presidential Scholars Program for graduating high school seniors who have successfully completed three AP courses.

**Tuition and Fees.** Tuition rates are those of the home institution, as long as it is an affiliated institution. Room and board is US \$210 per week at all North American sites, and is paid to the Participating College. Travel arrangements for International programs are made by the Institute and travel fees are paid directly to the Institute. Students from other than Participating Colleges may arrange tuition payment through a Participating College or directly to the Institute. Texts and supplies are usually less than US \$150 per course.

**Facilities.** Au Sable-Great Lakes is located in the Great Lakes Forest on an oligotrophic lake in northern Michigan. Au Sable-Pacific Rim is on Whidbey Island between Vancouver and Seattle. Au Sable-South Florida is in North Fort Myers. Living accommodations are motel-type rooms, rustic dormitories, and cabins.

**International programs.** Au Sable-India, in Tiruchirappalli, Tamil Nadu, is a partner institute which conducts research and educational programs to promote sound environmental stewardship practices appropriate to their own regions. Courses are offered which give students opportunities to study the ecology, society-environment interactions, and stewardship issues and solutions of other parts of the world. Au Sable internships are also offered at various sites.

**Faculty Development.** A development program is integrated into the summer sessions for professors who wish to develop their capacity to work within and across disciplines, broaden their in-the-field experiences, and work on the integration of stewardship into their teaching and research. Interested person should contact the site director.

# MISSION

**Institute Philosophy.** The basis for the mission of Au Sable Institute is the Bible as the sole authority for faith and practice. The board, faculty, and staff confess that God is exclusive owner of all and that human beings are trustees of that over which they have responsibility. The task and responsibility of human beings is that of stewardship; stewardship is the responsible care and use of the Creation and of its creatures. Stewards of the Creation must have ecological awareness and ecological knowledge. They must know and understand the interrelationships between living creatures and their environments. They must know the nature and impacts of its use by human beings. Stewards of the Creation must have knowledge and skills for acting responsibly in the sustaining, renewing, and preserving of the Creation and its rich diversity.

**Mission of the Institute.** The mission of Au Sable Institute is the integration of knowledge of the Creation with biblical principles for the purpose of bringing the Christian community and the general public to a better understanding of the Creator and the stewardship of God's Creation. All of its programs and activities are structured to allow, and are conducted for, promotion of Christian environmental stewardship. This includes persistent dedication to exemplary Christian stewardship in its planning, operations, programs, and outreach.

**Role of the Institute in the Church and Society.** The role of Au Sable Institute is that of a professional and vocational institution of higher education complementary to colleges and universities. It fulfills this role through provision and fostering of education directed toward attainment of (1) integrated ecological knowledge, (2) proficiency in the use of tools for knowledgeable stewardship of the Creation, and (3) professional integration of biblical principles with this knowledge and proficiency. The educational service of the Institute is supportive of evangelical Christian colleges, the broader worldwide Christian community, the local environs of the Institute, and society at large.

In performing its professional and vocational role, the Institute (1) provides courses and programs in environmental stewardship for evangelical Christian colleges, universities, and seminaries; (2) provides courses and programs for all college and university students with professional, vocational and/or

academic interests in developing an understanding of Christian environmental stewardship; (3) provides environmental education, information, and analytical services to school systems and governmental agencies; (4) provides services to evangelical Christian colleges for nurture and development of their environmental curriculum and stewardship goals; and (5) cooperates with and assists churches and denominations, educational institutions, and environmental stewardship organizations in responding to environmental needs and issues in a manner consistent with the proper care, keeping, and restoration of the Creation. Where knowledge is not yet available, not yet organized and integrated, or not yet taught, the Institute may seek to find, organize, integrate, and/or teach such knowledge; it may do so through courses, integrative work between courses, conferences, and Forums. In so doing the Institute seeks to apply proper stewardship to its use of resources, leaving to existing institutions that which they already are doing quite well.

As a professional institution, Au Sable Institute operates from the conviction that everything done by the Institute, its students, and alumni necessarily professes what and who we are. All of its work and service is conducted as profession: its planning, development, operations, programs, and outreach. Thus, in its teaching and learning, in its building and grounds, its ecosystem and land stewardship, and its societal relationships, the Institute professes awareness and knowledge of the Creation, the meaning of environmental stewardship, the vitality and spirit of Christian community and the caring management of entrusted life and resources. As a vocational institution, Au Sable Institute operates from the conviction that God's will must be sought as it works in the service of God's Creation. Selection of the work to be done must be in full response to God's will and calling. Thus the Institute provides a means whereby one can seek God's will in the world, particularly as it relates to God's call to be trustees and stewards. In recognition of the seriousness of this call, the Institute recognizes those who have attained the necessary knowledge and skills by granting professional and vocational certification. Placement assistance is not offered.

**A**u Sable Institute has four locations: in the Great Lakes Forest near the middle of the North American Continent; on Puget Sound at the edge of the Pacific Ocean between Seattle and Vancouver; in south Florida just north of the Everglades; and in the state of Tamil Nadu, in south India.

**Au Sable-Great Lakes** is located in the northwoods country of Michigan's Lower Peninsula, about 80 miles southwest of the Straits of Mackinac and 40 miles east of Traverse City. Surrounded on three sides by tens of thousands of acres of wild forests, Au Sable-Great Lakes includes an active beaver colony and frontage on a 215-acre oligotrophic lake. Environmental resources in the vicinity of Au Sable-Great Lakes are both abundant and diverse. Included are numerous pristine river systems, approximately 900 lakes and ponds in the local four-county area, some 80 bogs in the local twelve-township area, diverse forest ecosystems, three Great Lakes, various sand dune communities, diverse climatic and topographic features, and an abundant and diverse flora and fauna. Of particular significance are Sleeping Bear Dunes National Lakeshore, Hartwick Pines and Wilderness State Parks, Lake Skegemog Wildlife Area, Grass River Natural Area, and the Jordan, Manistee, Au Sable, and Rapid rivers. The climate is typical of north-temperate regions, although the Great Lakes temper the extremes. Summer days are usually mild and sunny, followed by cool evenings. Snow dominates the winter landscape; it typically is 20-40 inches deep in January.

**Au Sable-Pacific Rim** is located on Whidbey Island in the Puget Sound the mid-point between Vancouver, British Columbia and Seattle, Washington. The Olympic Mountain Range lies to the west and a great marine estuary to the east. Au Sable-Pacific Rim is on a former state game farm and includes a rare remnant glacial outwash prairie. Nearby, tide pools display a remarkable array of sea life at low tide and coastal cliffs rise along the eastern boundary of the Pacific Ocean. Orca whales and harbor seals, flocks of feeding shore birds, abundant marine invertebrates and diverse sea plants, and scores of Bald Eagles are among the myriad of creatures that can be observed on site. Environmental resources in the region are remarkably abundant and diverse. From forest to the sea, from desert to rain forest, from sea level to mountain heights there is overwhelmingly wondrous life. Of particular significance in the region are Olympic National Park, the Ebey's Landing Historical Preserve, North Cascades National Park, and numerous marine laboratories within Puget Sound. The climate at Au Sable-Pacific Rim is one of only 18 inches annual rainfall, comfortable temperatures, and pleasant ocean

breezes. Summer days are comfortable, insects are minimal, and conditions are excellent for conducting work in the field.

**Au Sable-South Florida** is located at the site of Educational Concerns for Hunger Organization (ECHO) at North Fort Myers, south Florida. It is immediately north of the Everglades, in close proximity to the Tropical Fruit and Spice Park, and has a sub-tropical climate. Courses at this site are given to complement and support the vision of ECHO "to bring glory to God and a blessing to mankind by using science and technology to help the poor." The Institute is in partnership with ECHO at this site to provide educational support for ECHO's primary mandate to strengthen the ministries of missionaries and national churches as they work with small rural farmers and urban gardeners in developing countries, and to provide the educational base for assistance to development organizations and Peace Corps workers doing similar work. Courses at Au Sable-South Florida include those that assist and prepare development workers and missionaries in the area of tropical seed production, sustainable tropical agriculture, and related matters. This program utilizes ECHO's tropical demonstration farm and technical resource building, its fruit arboretum and the six settings of its *Global Village*: tropical rainforest, semi-arid, hillside farming, tropical lowlands, rooftop and urban gardens, and a schoolyard.

**Au Sable-India** is located at Bishop Heber College in Tiruchirapalli, in the state of Tamil Nadu, South India. The Heber-Au Sable Institute offers a master of science degree in environmental science which includes a requirement for the college students to lead environmental education programs for primary school children and teachers and to conduct research on appropriate technologies such as plastered straw construction, rooftop gardening, and wastewater treatment by artificial wetland systems. South India has a remarkably varied and beautiful landscape with a great diversity of life, as one of the mega-diversity regions of the world. The region includes such varied environments as coastal ecosystems, mangrove forests, plains, thorn scrub, dry and moist deciduous forests, and evergreen shola forest, and grassland and montane tropical ecosystems of the Western Ghats. Here one can find both vistas of breathtaking beauty as well as landscapes of ecological fragmentation and degradation. Black buck, Nilgiri Tahr (a Goat Antelope), Nilgiri langurs, giant flying squirrels, monitor lizards, lion-tailed macaques and a rich diversity of birds are among the native wildlife. Especially significant wildlife preserves are Chinnar Wildlife Sanctuary, Eravikulam National Park, Point Calimere, and Periyar Tiger Reserve. Temperatures in winter are between 22 and 27 Celsius and slightly warmer in the summer. The mountain regions are cooler.

# INSTITUTE LIFE

## institute life

**The Au Sable Community.** Life at Au Sable is that of a supportive Christian community. Students, staff, faculty, and families share in learning, recreation, and worship. Each course is itself an integrated whole of learning, devotions, and recreation. The courses, taken together with individual devotions, study, and community activities, form the integrated whole that is Au Sable.

Students engage in fun, study and recreation after classes. Late evening is a time when students often gather for discussions over popcorn and hot chocolate.

Faculty-student interaction is important at Au Sable. Faculty often work with and assist students outside of class, work with them in research, and join them for many meals, recreation, and vesper services. Together in the field they explore and share the order and wonder of the natural world, as fellow believers excited and awed at a world which proclaims the glory of God. And when from time to time they observe the Creation abused, faculty and students find themselves seeking ways as God's stewards to redeem a degraded environment.

**Student Conduct.** While extending the privilege of admission to all irrespective of creed, denomination, race, color, or national origin, the Institute expects students to conduct themselves both on and off Institute grounds in accordance with biblical principles and in accordance with the rules of conduct detailed by the home institution through which they enroll. The Institute expects its students not to make Christian liberty a cause for stumbling for others (in accord with 1 Cor. 8:9), but it also expects its students not to despise or pass unfair judgment on fellow students (in accord with Rom. 14:3,4). In short it is expected that all students will pursue behavior which at all times contributes positively toward the mutual upbuilding of the Christian community (in accord with Rom. 14:19 and 15:2). Consistent with its focus on stewardship, the Institute does not permit smoking, drugs, or alcohol on Institute grounds or in its facilities.

**Worship and Fellowship.** The Institute provides opportunities for worship and fellowship with various churches in the area, and arranges or provides necessary transportation. It also requires participation in mid-week integrative sessions on Christian environmental stewardship, and participation in weekly vesper worship services held at the Institute.

**Weekly Schedule.** The Au Sable academic week is 8:00 A.M. Monday through 5:30 P.M. Friday. All courses are restricted to this period with some exceptions made for field trips. This allows Sunday to be a day of rest and Shalom. Wednesday is the Integrative Session during which all students and faculty address an environmental stewardship theme or issue, each including a field component. **The Integrative Sessions are part and parcel of the other courses students are taking, are integrated into course content, and are covered in class discussions and examinations.**

**Recreation.** Recreational opportunities provided by the Institute vary by site and season, and may include wildlife observation, nature study, wild land and tide pool exploration, field trekking, volleyball, cross-country skiing, snowshoeing, and snorkeling.

**A**u Sable Institute operates as a service to colleges and universities, churches and denominations, and organizations and agencies, in partnership with them. The longest standing partnerships are with the Participating Colleges and Universities, with whom the Institute works to provide courses, research opportunities, and certification programs that assist them and their students in achieving a rich and full curriculum in areas related to environmental stewardship. At its two campuses in the Great Lakes Forest and in Puget Sound, the Institute provides educational and research settings for undergraduate and post-graduate students and faculty for these partners for the purpose of enhancing opportunities to teach, learn, and put environmental stewardship into practice. At other sites across the continent and around the globe, the Institute's partnerships include sharing of facilities and cooperative programs. For many of these partners, the facilities for teaching, research, and stewardship practice belong to them and are shared with us and our students and faculty. Among our partnerships, both established and under development are the following:

**Christian Colleges and Universities.** These now number over 60 institutions across the continent, and partnerships here engage faculty and students in a vibrant and productive community of teaching and learning.

**Council for Christian Colleges and Universities.** Au Sable and the CCCU have a long-standing relationship in which Au Sable provides financial aid and scholarships for any CCCU member schools not listed with the Institute as a Participating College or University. These 'Eligible Colleges and Universities' are listed on page 27. Au Sable recognizes this partnership by listing the CCCU as a participating institution in this Official Bulletin.

**Heber Au Sable Institute.** Our sister Institute at Bishop Heber College in Tiruchirapalli, India, is Au Sable's partner in research, teaching, and practical stewardship in the Indian sub-continent. Our mutual research projects include rice-straw building construction, roof-top gardens, and pedal-power technology.

**ECHO.** The Educational Concerns Hunger Organization of North Fort Myers, Florida partners with the Institute in giving courses that relate to missionary earthkeeping and tropical ecology, including for example, a course in Tropical Agriculture and Missions.

**The John Ray Initiative.** We partner with JRI in the United Kingdom in research, education and practical stewardship. Our co-sponsored international Forum 2002, which produced the Oxford Declaration on Climate Change, is an example.

**U. S. National Park Service.** Our campus on Whidbey Island lies within Ebey's Landing National Historical Reserve, a part of NPS, with which we partner in areas of prairie and ecosystem restoration, interpretive natural history, and land stewardship.

**Northwest Lower Michigan School Systems.** Three intermediate school districts in the northern Lower Peninsula partner with us in participating in a program that teaches environmental stewardship and environmental history to help meet Michigan education requirements.

**Whidbey Island Community.** Community residents and local organizations use our campus on Whidbey Island for hiking, nature study and meetings. Organizations who utilize or are involved in various ways with the site include the Coupeville School District, the Whidbey Audubon Society, the Washington Native Plant Society, The Nature Conservancy, The Wilderness Society (Pacific Northwest Section), the National Parks and Conservation Association (Pacific Regional Office), the Coupeville Art Center, and the Ebey's Landing Trust Board.

**Internship Partners.** Internships offered by Au Sable are done in partnership with a wide array of institutions and organizations, including **the Royal Botanic Gardens at Kew**, England; **the Eden Project** in Cornwall, England; **A Rocha** in Lebanon, Portugal, and the United Kingdom; **Floresta** in the Dominican Republic; and the **Wagbo Peace Center** in East Jordan, Michigan.

Contact information for these partners may be found at [www.ausable.org](http://www.ausable.org).

### ELIGIBILITY AND APPLICATION PROCEDURE

**Eligibility.** Admission to all Institute programs is a privilege extended to all regardless of creed, denomination, race, color or national origin.

**Application for Admission.** Application materials for all Institute programs may be obtained from the institute's website, [www.ausable.org](http://www.ausable.org), or from the Au Sable Representative on your campus or directly from the Institute. Current students at our participating colleges are automatically eligible for admission upon submitting the Admission Application on-line and approval by their Au Sable Representative. All other applications from students and colleges not formally affiliated with Au Sable will be reviewed for admission. Such students should initially contact the Admissions Office before attempting to enroll.

**Course Enrollment.** Students may enroll for courses online at [www.ausable.org](http://www.ausable.org). The printed on-line enrollment form must be signed by the Au Sable Representative and the Registrar at the student's home campus and sent to the Institute by the postal service. An **Application Fee of US \$25** must be paid with the application (on-line or by check). In addition, a **Tuition Deposit of US \$250 for each session enrolled** must be paid on acceptance to hold space in a class. Class enrollments are subject to cancellation until this deposit is received. In the event a student is not accepted by the Institute, the application fee and deposit fee will be refunded. If a student withdraws within three days of application, all deposit fees will be refunded within thirty days.

**Priority for Certificate Students.** Certificate students are given preference on course selection, fellowships, and financial aid.

### ACADEMIC STANDARDS AND RECORDS

**Grading System.** Grades are designated by letters A, excellent; B, good; C, average; D, just passing; and F, failure. The following numeric values (grade points) are assigned to each of these letter grades: A, four points; B, three points; C, two points; D, one point. Plus grades are computed at three-tenths of a point above these figures and minus grades at three-tenths below these figures.

A grade of W will be recorded for courses students leave for any reason with the written approval of their instructor and the Institute Director. Students who discontinue classes without notification or permission will be given the grade of F. A student may repeat a course, but only the latest grade will be used in computing the grade point average for courses taken at the Institute. Such grades are entered on the Institute records preceded by the letter R. A temporary grade of NR (no report) is given in rare instances when the instructor is unable to report a final grade on schedule. The grade of Y may be given for courses that continue into a following academic session.

In the event a student fails to complete all required work for a course or fails to take the final examination, the

instructor may, if the student's reasons are considered valid, grant a grade of I (incomplete) rather than an F. This deficiency must be made up within 6 months of the final examination, and if not so done, is changed to an F.

If because of extended illness the 6-month deadline cannot be met, an extension may be given by the Institute Director if requested by the student in writing at least one week prior to the deadline.

**Student Rights and Records.** At the conclusion of each session in which a student is enrolled, a grade report will be given to the student or mailed to the home address of the student, unless the student files a written request that this not be done. Grades may also be viewed by the student at [www.ausable.org](http://www.ausable.org) under "My Account". Official transcripts of grades will be sent to the registrar of the home college through which the student is enrolled. Transcripts will not be released to any party without written approval of the student in accordance with the Educational Rights and Privacy Act of 1974.

**Standards for Course Offerings.** Each course offered by the Institute, in addition to having to meet Institute standards, is an approved offering of at least one accredited 4-year Christian liberal arts college, normally the college with whom the faculty member teaching the course has an academic year appointment. The Institute is licensed by the State of Michigan.

**Awarding Certificates.** Persons who are working toward a certificate from the Institute must file a formal certificate application no later than the beginning of the semester in which they expect to graduate from their home institution. The Institute will identify undergraduates who qualify for Institute certificates in writing to the home college so that they may then recognize them at graduation ceremonies, indicate this fact on the college transcript or otherwise recognize or announce this achievement. Postgraduates and graduate students should file a formal certificate application not later than the beginning of their final academic session at the Institute.

**Academic Advisory Council.** The Academic Dean of the Institute is advised on academic matters and academic standards by the Academic Advisory Council, a body consisting of one Au Sable Faculty Representative from each of the Participating Colleges. The list of Participating Colleges and the current faculty representatives on the Academic Advisory Council are listed beginning on Page 27. The Academic Advisory Council meets annually, as shown in the Institute Calendar. Observers from colleges, universities and seminaries considering application for participating status are welcome.

**Tuition and Fees:** *Tuition* is paid by the student to their home college, for all courses taken at the Institute. Tuition is equal to the rate charged by the home college (only affiliated colleges), or US \$1200 per course, whichever is higher. Where this minimum tuition rate creates a financial hardship for the student, Au Sable will work with the home college to attempt to negotiate a financial aid solution to assist the student (see Financial Aid). An *Application Fee* of US \$25 must be paid with the enrollment application. This fee is not applicable to tuition, nor is it refundable, unless the school rejects the applicant before enrollment. Upon admission, a tuition deposit of US \$250 for each session must be paid in order to reserve space in class. Tuition deposits are applied to the student's account. All tuition and fees paid by the applicant shall be refunded if requested by the applicant within three business days of enrolling and all refunds shall be returned within thirty days. After three business days have elapsed, however, the policy note below under Refunds shall apply. Room and board will be charged through the home college at the rate of US \$210 per week for all North American sites. Room and board and travel for international programs varies by site. Students from other than Participating Colleges may arrange payment through one of the Participating Colleges or directly to the Institute. Contact the Institute's Registrar's office for assistance. The Au Sable office may be closed on federal holidays.

**Other Expenses:** Students should plan on expenses of about US \$150-160 per course for textbooks and supplies. Travel to the session site in North America, or to the designated international departure point for International sessions, is over and above published rates and will be at the student's own expense.

**Refunds:** Once three business days have elapsed, application fees and tuition deposits are non-refundable unless the applicant is rejected. Withdrawals or drops after the start of class will be refunded as follows: After one day (i.e. 10%) of class time, 50% tuition will be refunded; after two days (20%), 25% tuition will be refunded. Following the second day of class, no refunds will be allowed. Scholarship and grant amounts will be adjusted on a prorated basis for drops and withdrawals. Withdrawals for health reasons will be handled on a case by case basis.

**Au Sable Fellows and Fellowships.** The Institute recognizes certain students having exceptional abilities, interests, and leadership potential in environmental stewardship by designating such students "Au Sable Fellows." Au Sable Fellows are granted fellowships that normally provide an award equivalent to 50% of tuition charges for courses taken in Summer Sessions. Additional support may be available in cases of need (see Grants-in Aid). Au Sable Fellows must enroll in two courses per summer session. Fellowships are not granted in amounts that exceed costs for tuition and room and board.

Students are nominated by their Official Faculty Representative for Au Sable Fellow designation according to the following criteria:

- Superior academic ability, exceptional interest in environmental studies, and good potential for leadership in environmental stewardship.
- Completion of at least a two-semester sequence in a natural science or two courses in the natural sciences before the summer of enrollment, or high school Advanced Placement (AP).
- Reflection of the biblical principles of love, service and stewardship in their daily life.

The nominated student fills out an application form available online ([ausable.org](http://ausable.org)), and submits it to their Representative. The Representative writes a letter of support that affirms the student's qualifications and interest in environmental studies and submits this letter and application to the Institute by **January 15**. Fellowship awards will be announced by **January 31**. Fellowship applications will continue to be accepted, with deadlines of February 15, March 15, and April 15, if Fellowship Funds are still available. In each case, new Fellowship awards will be announced at the end of the month.

Students who qualify for receipt of this fellowship but who elect not to receive the fellowship funds will nevertheless be designated "Au Sable Fellows."

**Medical and Health Pre-Professionals Fellowship.** An award equivalent to 50% of tuition charges for courses taken in a summer session is available to a student enrolled in a pre-medical or allied health profession at a participating college. Academic criteria for this award are the same as an Au Sable Fellowship. The Representative writes a letter of support that affirms the student's qualifications and vocational intent in the health sciences and interest in environmental studies.

**Missionary Earthkeeping Fellowship.** These fellowships are awarded to qualified students who have a strong vocational commitment to a career in missions and missionary earthkeeping. This fellowship adopts an ecological perspective in accord with the missions work of William Carey, Toyohiko Kagawa, and Luther Copeland, bringing good news to all creation in the spirit of Mark 16:15. This award normally provides 50% of tuition and room & board support for Summer Sessions. For May Term, the Award will cover full tuition only. This award is not available for January Term. Students must apply to their Official Representative who selects and nominates the one or two students in consultation with the student's faculty missions advisor or other missions faculty member. Required credentials include a vocational statement that confirms a dedication to a career in missions, an academic transcript, a resume, and letters of recommendation from a missions professional, academic advisor, and Official Representative. Deadlines are the same as the Leadership Fellowship.

# FINANCIAL AID

**Au Sable Presidential Scholars.** High school seniors with Advanced Placement (AP) in three courses, and who will have enrolled in a Participating College in the upcoming fall semester may enroll in the Institute for US \$1000 per summer session and attend the Institute between their high school graduation and their first semester in college. At least one of their AP courses must be in the natural sciences.

**Au Sable Honors Scholarship.** These are in the amount of US \$350 for the three-week May Session or South Florida program and US \$500 for the five-week Summer Sessions and are awarded to returning Au Sable students who have excellent potential for successful completion of a certification program and excellent potential for developing leadership in Christian environmental stewardship. Receipt of the Au Sable Honors Scholarship does not diminish the opportunity for students to receive other forms of financial assistance for which they might be eligible.

**Institute Grants-in-Aid.** Grants-in-aid, normally in the amount of US \$600 each, are available to qualifying students enrolled in two courses at Au Sable during Summer Session I and/or Summer Session II. The criteria are the same as those for the Au Sable Fellowships with the following exceptions:

- a. Financial need must be demonstrated.
- a. The student must have good to excellent academic ability.

A student may apply for a grant through their Au Sable Official Representative. The request for a Grant-in-Aid should accompany the student's application and course enrollment form. Awards will be made on the basis of demonstrated financial need, available funds and date of application.

**Calvin B. DeWitt Leadership Fellowship.** Participating Colleges may nominate one student for a Leadership Fellowship each year. Au Sable will normally select one student to receive this award. Leadership Fellows must be nominated by their home institution, and will receive an award equivalent to all tuition and fees, the cost of books (but no other supplies), a travel stipend, and a monetary award.

Nominees must show high potential for leadership in Christian environmental stewardship. This fellowship is granted only to students who are nominated by their home institution. A case statement prepared by the college on behalf of the nominee must accompany the nomination by the college. The case statement should include:

- a. A statement from the college describing the student's financial need and giving evidence of the student's leadership potential, including personal growth in recent years;

- b. A personal statement (500-600 words) by the student reflecting on experiences which demonstrate past leadership, interest in and commitment to Christian environmental stewardship;
- c. Personal belief and future goals and aspirations;
- d. Three letters of recommendation;
- e. Current copies of all college transcripts, and
- f. A resume listing education, service involvement, leadership positions and community, church, and co-curricular activities.

This fellowship is granted to students who enroll in either summer session. Nominations, including case statement, must be filed with the Institute Registrar by the home institution on or before **January 15** and should accompany the student's application and course enrollment form. Awards are announced by **February 15**.

**Grant Support for Indian Nationals.** Support is available for 6 or more Indian nationals annually for attending Au Sable - India. This support normally covers most or all costs, including travel. Student familiar with Heber Au Sable Institute in Tamil Nadu, India, may apply directly to Heber Au Sable Institute.

**Earthkeeping Mission Training Grants.** Many churches are willing to give an Earthkeeping Mission Training (EMT) grant to student members of their congregations who participate in Au Sable Institute programs. These grants, in the amount of US \$500 - \$1500 each, are initiated by the student by their submission of a copy of this Official Bulletin to the pastor, council, or church board with a request for their consideration. Students who receive EMT grants normally report on their work upon return to their home church. Persons selected for EMT grants by the home churches generally are those who have a deep interest in earthkeeping and have vocations or vocational aspirations that include the application of their Christian faith to the care and keeping of Creation. Churches may request recipients of their EMT grants to use some of their time with Au Sable to consult with Au Sable faculty and staff in behalf of their church environmental stewardship program and gather stewardship materials for use by the sponsoring church, at no charge.

# 2007

## certificates

## Au Sable Institute's Certification Program

**C**ertificates are granted by the Institute for naturalists, land resources analysts, water resources analysts, and environmental analysts. Students working toward a certificate so indicate on their admissions form or give written notice to the Institute Registrar. Students who are seeking certification have priority for admission, course selection, and, following completion of their first academic session, receive additional consideration for fellowships and grants-in-aid. Certificate requirements are revised periodically, and students may comply either with those requirements listed in the Official Bulletin under which they first enrolled, or the most recent requirements, at their discretion. Placement assistance is not offered.

**Application for Certificates and Institute Diploma.** Students working toward a certificate must file a formal certificate application no later than the beginning of the semester in which they expect to graduate from their home institution.

**General Requirements for Certification.** Students working toward any of the Institute certificates or the Institute diploma must complete or achieve the following:

- a. A baccalaureate degree program at a college or university approved by the Institute.
- b. An approved major field of study at a liberal arts college or university with an average grade of C or better in the major field of study.
- c. A minimum of three approved courses for a minimum of 270 contact hours taken in residence at the Institute.
- d. A minimum of four field courses totaling a minimum of 300 contact hours taken at either or both the college and the Institute. (A field course has 50% or more of the contact hours in out-of-doors situations. The remaining 50% of the contact hours is in classrooms, laboratories, government buildings, fish hatcheries, etc.)
- e. A minimum of one applied course with a minimum of 45 contact hours. (An applied course has 40% or more of the contact hours devoted to applications and techniques that are routinely used in occupations and vocations.)
- f. A minimum of two interdisciplinary courses each with a minimum of 45 contact hours. (An interdisciplinary course has no more than 40% of the contact hours from a single traditional liberal arts department or field of study.)
- g. An average grade of C or better for courses taken at the Institute for certification and an average grade of B or better for courses taken

**Petition Procedure.** Students who believe they will have completed the required course work for a certificate with one or more courses that are not specifically identified in the listed certification requirements may petition the Undergraduate Certification Faculty Committee for one or more course substitutions. Petitions may be made at any time and are acted on within 30 days.

**Specific Requirements for Certification.** The following are the additional specific requirements:

### **CERTIFIED NATURALIST (Field Naturalist Certificate)**

The purpose of the Naturalist Certificate is to certify students as having proficiency in occupational skills in interpretive natural history and environmental biology, skills required for pre-medical students considering work in environmental medicine, and students seeking interpretive naturalist and related positions with schools and colleges, science and natural history museums, nature interpretive centers, state departments of natural resources, arboretums, preserves, and school forests.

#### **Minimum Course Requirement:**

- a. One course in plant taxonomy, field botany, regional vegetation, or woody plants with a minimum of 90 contact hours.
- b. One course in field biology, natural history, woody plants, animal ecology, or an animal group, with a minimum of 90 contact hours.
- c. One course in ecology or introductory tropical medicine for which a year of general biology is a prerequisite, with a minimum of 90 contact hours.
- d. One course in physical geography, geology, land resources, land stewardship ecology, biosphere science, or soils with a minimum of 90 contact hours.

# CERTIFICATES

## Minimum Occupational Techniques Requirement:

This is met through course work and proficiency tests administered by the faculty of the Institute.

- a. *Museum Techniques.*  
Must demonstrate proficiency at professional museum techniques for at least one major plant or animal group. Examples are herbarium specimen preparation and management, insect specimen preparation and management, study skin preparation and management, and preserved specimen preparation and management. This normally is achieved through regular work done in Au Sable courses.
- b. *Field Techniques.*  
Must demonstrate proficiency in use of topographic maps, aerial photographs, and geographical positioning systems (GPS) for orientation and other purposes under field conditions. Must demonstrate proficiency in management, transport, and safety techniques for use of boats and canoes. Must demonstrate proficiency in conduct of field trips for children and adults, complete any of the officially-listed internships in this Official Bulletin, or work as a volunteer or intern teaching out-of-doors for a church, nature center, or environmental organization.
- c. *Literature and Information Techniques.*  
Must demonstrate proficiency in selecting and managing library materials relating to environmental stewardship and natural history subjects. This can be achieved by (1) developing a specific topical collection for the Institute's "Green Box Collection," (2) contributing to the Au Sable website, or (3) volunteer work on an environmental topic in an Au Sable campus library, college library, public library, or nature center library.

## CERTIFIED LAND RESOURCES ANALYST (Land Analyst Certificate)

The purpose of the Land Resources Analyst Certificate is to certify students as having proficiency in occupational skills in land resources interpretation, assessment, inventory, and management—skills required for planning, resource management, and related positions with employers such as township and county planning agencies, county zoning offices, departments of natural resources, private planning and engineering firms, and firms engaged in landscape architecture.

## Minimum Course Requirement:

- a. One course in land resources, land stewardship ecology, or town and country planning, with a minimum of 90 contact hours.
- b. One of the following courses: 301, 303, 304, 306, 308, 309, 326, 343, 353, 375, 403, 427, 457, 477, 479, 482, 486, 487, 489 with a minimum of 90 contact hours.
- c. One course from the following, with a minimum of 90 contact hours: Physical geography, soils, hydrology, general geology, field geology, geomorphology, environmental geology.
- d. One course in ecology, ecological agriculture, or development and ecological sustainability with a minimum of 90 contact hours.

**Minimum Occupational Techniques Requirement:** This requirement is met through course work and proficiency tests administered by the faculty of the Institute.

- a. *Remote Sensing and Photographic Interpretation Techniques and Geographic Information Systems (GIS) and Geographical Positioning Systems (GPS).*  
Must demonstrate proficiency in managing geographic information systems and ability to use satellite and aircraft imagery in interpretation and mapping landforms, vegetation types, and urban development.
- b. *Field Techniques.*  
Must demonstrate proficiency in use of topographic maps, aerial imagery, and geographical positioning systems (GPS) for orientation and other purposes under field conditions. Must demonstrate proficiency at dominant species identification and classification of biotic communities and ecosystems.
- c. *Laboratory Techniques.*  
Must demonstrate proficiency in computer-based overlay mapping techniques applied to land resources planning, management, and decision-making.
- d. *Literature and Information Techniques.*  
Must demonstrate proficiency in identification, location, procurement, and use of planning and management documents of public and private agencies. Must demonstrate proficiency in preparing land resources maps and integrating them with non-technical but accurate text for use in policy-making and planning.

# CERTIFICATES

- e. *Computing and Information Processing Techniques.*  
Must demonstrate proficiency in the use of computers in ecological and geographic and geo-referenced data management and analysis, spreadsheet modeling, and word-processing.

## **CERTIFIED WATER RESOURCES ANALYST (Water Resources Analyst Certificate)**

The purpose of the Water Resources Analyst Certificate is to certify students as having proficiency in occupation skills in water resources interpretation, assessment, inventory, and management— skills required for planning, resource management, and related positions with employers such as township and county planning agencies, county zoning departments, soil and water conservation agencies, state departments of natural resources, planning and engineering firms, lake-owners associations, and governmental lake districts.

### **Minimum Course Requirement:**

- a. One course in limnology, wetland ecology, or water resources with a minimum of 90 contact hours.
- b. One course in aquatic biology, stream and watershed ecology, marine invertebrates or marine biology, with a minimum of 90 contact hours.
- c. One course in analytical or environmental chemistry with a minimum of 90 contact hours.
- d. One of the following courses: 303, 304, 305, 306, 324, 326, 346, 427, 457, 482 with a minimum of 90 contact hours.

**Minimum Occupational Techniques Requirement:** This requirement is met through coursework and proficiency tests administered by the faculty of the Institute.

- a. *Sampling and Measurement Techniques.*  
Must demonstrate proficiency in aquatic resources sampling techniques including use of grab samplers, plankton nets, seines, conductivity, pH, temperature and dissolved oxygen meters, transparency and light apparatus, and electronic thermometer.
- b. *Field Techniques.*  
Must demonstrate proficiency in use of topographic and bathymetric maps, nautical charts, aerial photographs, digital imagery, and geographical positioning systems (GPS) for orientation and other purposes under field conditions. Must demonstrate proficiency in management, transport, and safety techniques for use of boats and canoes.

- c. *Laboratory Techniques.*  
Must demonstrate proficiency in standard methods of water resources analysis including microscopy, titrimetric methods, spectrometric methods, gravimetric methods, and bacterial analysis. Must demonstrate competence in laboratory management and safety procedures, including methods of treatment, storage, and disposal of chemical and hazardous wastes. Must demonstrate proficiency in aquaria and captive aquatic organism management.
- d. *Literature and Information Techniques.*  
Must demonstrate proficiency in the use of EPA Standard Methods and the latest edition of Standard Methods for the Examination of Water and Wastewater as published by the American Public Health Association, American Water Works Association, and Water Pollution Control Federation, including thorough knowledge of its General Introduction.
- e. *Computing and Information Processing Techniques.*  
Must demonstrate proficiency in the use of computers in ecological and geographic and geo-referenced data management and analysis, spreadsheet modeling, and word-processing.

## **CERTIFIED ENVIRONMENTAL ANALYST (Environmental Analyst Certificate)**

The purpose of the Environmental Analyst Certificate is to certify students as having proficiency in occupational skills in land and water resources interpretation, assessment, inventory, and management— skills required for planning, resource management, and related positions with employers such as township and county planning agencies, county zoning departments, soil and water conservation agencies, state departments of natural resources, planning and engineering firms, and firms engaged in landscape architecture.

### **Minimum Course Requirement:**

- a. One course in land resources, land stewardship ecology, biosphere science or field geology with a minimum of 90 contact hours.
- b. One course in water resources, limnology or environmental chemistry with a minimum of 90 contact hours.
- c. One course in ecology with a minimum of 90 contact hours.
- d. One of the following courses: 303, 304, 306, 308, 309, 343, 375, 403, 405, 457, 471, 482, 487, 489 with a minimum of 90 contact hours.

# CERTIFICATES

**Minimum Occupational Techniques Requirement:** This requirement is met through coursework and proficiency tests administered by the faculty of the Institute.

- a. *Sampling and Measurement Techniques.*  
Must demonstrate proficiency in aquatic resources sampling techniques including use of grab samplers, plankton nets, seines, conductivity, pH, temperature and dissolved oxygen meters, transparency and light apparatus, and electronic thermometer.
- b. *Remote Sensing and Photographic Interpretation Techniques.*  
Must demonstrate proficiency at using satellite and aircraft imagery in interpretation and mapping of landforms, water bodies, vegetation types, and urban development. Must demonstrate proficiency in the use of equipment employed in such mapping.
- c. *Field Techniques.*  
Must demonstrate proficiency in use of topographic and bathymetric maps, nautical charts and aerial photographs for orientation and other purposes under field conditions. Must demonstrate proficiency at dominant species identification and classification of biotic communities and ecosystems.
- d. *Laboratory Techniques.*  
Must demonstrate proficiency in computer-based overlay mapping techniques applied to land and water resources planning, management, and decision-making. Must demonstrate proficiency in standard methods of water resources analysis including microscopy, titrimetric methods, spectrometric methods, gravimetric methods of treatment, storage, and disposal of chemical and hazardous wastes.
- e. *Literature and Information Techniques.*  
Must demonstrate proficiency in identification, location, procurement, and use of planning and management documents of public and private agencies. Must demonstrate proficiency in preparing analog and digital land and water resources maps and integrating them with non-technical but accurate text for use in policy-making and planning. Must demonstrate proficiency in the use of EPA Standard Methods and the latest edition of Standard Methods for the Examination of Water and Wastewater, published by the American Public Health Association, American Water Works Association and Water Pollution Control Federation, including thorough knowledge of its General Introduction (Parts 100-108).
- f. *Computing and Information Processing Techniques.*  
Must demonstrate proficiency in the use of computers in ecological and geographic and geo-referenced data management and analysis, spreadsheet modeling, and word-processing.

The Institute awards post-baccalaureate diplomas for Certified Stewardship Ecologists. The Stewardship Ecologist Diploma is for students who are completing or have completed their undergraduate education. Courses taken prior to graduation at the 300 level and above may be applied to diploma requirements, but the diploma is awarded only following completion of an undergraduate degree. A principal purpose of this diploma is to develop proficiency in vocational and occupational skills in stewardship ecology – skills required for the application of scientific and ethical principles in the conduct of environmental stewardship. It is designed to meet the need for stewardship ecologists and related positions with employers and service agencies such as natural areas conservancy organizations, departments of natural resources, local governments, planning agencies and nongovernmental organizations (NGOs), ecological missions, churches, and denominations. It also is designed to provide the opportunity to do advanced post-baccalaureate work in Christian environmental stewardship. Courses applied to certification may also be double-counted to apply also to the diploma. As a reminder, formal course credit is given by the student's home institution.

**Application for Institute Diploma.** Persons who are working toward a diploma from the Institute must file a formal diploma application. Those seeking a diploma should apply no later than the beginning of the semester in which they expect to graduate from their home institution. Students working toward a diploma indicate on their enrollment application form or give written notice to the Institute Registrar. Students who are seeking a diploma have priority for admission, course selection, and, following completion of their first academic session, receive additional consideration for fellowships and grants-in-aid. Diploma requirements are revised periodically, and students may comply either with those requirements listed in the Official Bulletin under which they first entered the Institute, or the most recent requirements, at their discretion.

**General Requirements.** Students working toward the Institute diploma must complete or achieve the following:

- a. A baccalaureate degree program at a liberal arts college or university approved by the Institute.
- b. An approved major field of study at a liberal arts college or university with an average grade of B or better in the major field of study.
- c. An average grade of B or better for courses taken at the Institute.

- d. A minimum of four approved courses taken in residence at the Institute for a minimum of 360 contact hours.
- e. A minimum of four field courses totaling a minimum of 300 contact hours to be made up of courses from either or both the college and the Institute. (A field course is one in which 50% or more of the contact hours are spent in out-of-doors situations. The remaining 50% or less of the contact hours is spent in classrooms, laboratories, government buildings, fish hatcheries, etc.)
- f. A minimum of one applied course with a minimum of 45 contact hours. (An applied course is one in which 40% or more of the contact hours is devoted to applications and techniques which are routinely used in occupational and vocational work.)
- g. A minimum of two interdisciplinary courses each with a minimum of 45 contact hours. (An interdisciplinary course is one in which no more than 40% of the contact hours is derived from subject matter from a single traditional liberal arts department or field of study. Examples of such departments and fields of study are biology, political science, chemistry, history, physics, geology, and literature.)

### Minimum Course Requirement:

- a. One course in restoration ecology with a minimum of 90 contact hours.
- b. One course in conservation biology with a minimum of 90 contact hours.
- c. One course in plant ecology with a minimum of 90 contact hours.
- d. Three courses from ecology, natural history, field biology, field botany, field geology, and field courses on specific animal and plant groups, not including introductory 100-level courses, with a minimum of 270 contact hours.
- e. One course in environmental ethics or stewardship, with a minimum of 90 contact hours.
- f. One course in ecological agriculture, global development, or practical stewardship, with a minimum of 90 contact hours.
- g. A minimum of 4 courses and 360 contact hours following achievement of an undergraduate degree.

# POSTGRADUATE

**Minimum Occupational Techniques Requirement:** This requirement is met through course work and proficiency tests administered by the faculty of the Institute.

- a. *Stewardship Techniques.*  
Must demonstrate proficiency at stewardship techniques in at least two of the following areas: ecological restoration, biological conservation, appropriate technology, ecological agriculture, afforestation, or a related field of practical knowledge.
- b. *Field Techniques.*  
Must demonstrate proficiency in use of topographic maps and aerial photographs for orientation and other purposes under field conditions. Must demonstrate proficiency in management, transport, and safety techniques in terrestrial and aquatic field conditions, geographic information systems (GIS), global positioning systems (GPS) and aerial imagery.
- c. *Literature and Information Techniques.*  
Must demonstrate proficiency in selecting and managing library and reference materials relating to environmental stewardship ecology by developing a specific topical collection for the Institute "Green Box Collection" or the Au Sable web site. Must demonstrate proficiency in computerized literature search.
- d. *Observational and Reflective Journal.*  
Must complete and present an observational and reflective field journal that meets or exceeds requirements for such journals in two Institute courses requiring such journals. This journal is prepared to high standards that run parallel to the standards for writing a graduate masters thesis.
- e. Must develop a professional portfolio stressing background, skills, and experiences.
- f. *Practicum.*  
Must engage in practical experience (e.g. an internship) in an aspect of environmental stewardship such as ecological restoration or biological conservation for a minimum of 80 contact hours. This experience must include appropriate training and supervision, performance evaluation, and a two-page summary of these activities. Opportunities for this are provided on site, but may also be gained through work with relevant organizations and agencies.

## Au Sable Graduate Fellows

The Institute recognizes certain graduate students at major research universities as having exceptional abilities, interests, and leadership potential in environmental stewardship by designating them "Au Sable Graduate Fellows."

Au Sable Graduate Fellows receive a fellowship stipend of US \$100 per semester (for Ph.D. students) or US \$50 (for Master's Degree students) explicitly for the purchase of books and reference materials on Christian environmental stewardship. These publications are to enable them to maintain their education and research in Christian environmental stewardship at a level comparable to that of their graduate study and research in the university. Au Sable Graduate Fellows also meet regularly for exploration of particular Christian environmental stewardship topics in depth and emphasize the integration of Christian environmental stewardship with the Fellows' fields of study.

Au Sable Graduate Fellows meet regularly at their university location for "Integrative Sessions", modeled after the Integrative Sessions of the Institute's academic sessions, at which they and supportive university faculty present seminars to each other on Christian environmental stewardship themes. These meetings explore particular Christian environmental stewardship topics in depth and emphasize the integration of the graduate fields of study represented with Christian environmental stewardship. Periodically, the Au Sable Graduate Fellows meet for seminars and discussions across the various universities where Graduate Fellows groups have been established. Currently this program is located at three universities and, through the initiative of graduate students and faculty, this number is being increased. These three universities are:

**Cornell University.** Au Sable Graduate Fellows at Cornell are coordinated by Dr. Gary Fick, Professor of Agronomy, with meetings held in Annabelle Taylor Hall. Interested Cornell graduate students and faculty may contact him at gwf2@cornell.edu or reach him by telephone at 607-255-1704.

**The University of Michigan-Ann Arbor.** Dr. Rolf Bouma coordinates the Au Sable Graduate Fellows at Michigan where he serves as the Campus Chapel's pastor for Academic Ministries. Graduate students and Michigan faculty may contact him at rbouma@umich.edu or 734-668-7421.

**University of Wisconsin-Madison.** Wisconsin Graduate Fellows are coordinated by Dr. Vern Visick. Interested students or faculty may contact him at New College Madison at vvisick@aol.com or 608-442-5829.

The Institute offers college-level courses during the January, May, and Summer Sessions. Courses are listed with both semester credit hours and contact hours. The official measure of workload used by the Institute is contact hours, with listed credit hours advisory to the home institution. Semester credit hours granted for a given course are determined by the home institution which a student enrolls. Thus the advisory semester credit hours listed are not necessarily those granted by the home college. For example, a college may grant 4 credit hours for a single course in either of the two summer sessions but grants a total of 6 credit hours for a summer session in which a student takes two courses simultaneously. Contact hours indicate the number of actual hours spent in class per course including field trips, laboratories, and lectures.

Courses numbered 100-299 are undergraduate courses not open to graduate students for credit; courses numbered 300-699 are undergraduate and graduate courses; those numbered 700-999 are graduate courses. Whether courses are awarded undergraduate or graduate credit is determined by the college or university through which a student enrolls; it is not determined by the Institute.

The course listing also indicates whether the course qualifies as a *field*, *interdisciplinary*, or *applied* course. These designations are to be used in selecting courses which meet the requirements of Institute Certificates, described previously in this Bulletin.

**Cross-cultural credit.** International courses offered by Au Sable may qualify for cross-cultural credit. Interested students should contact the Au Sable Representative on their campus for more information.

**Course Enrollment.** Students may apply for admissions and enroll for courses on-line at [ausable.org](http://ausable.org). The on-line enrollment form is printed by the student and signed by the Au Sable Representative and the Registrar of the home college campus. See page 8 for application fee and deposit information.

**Arrival and departure.** Students are expected to arrive sometime on the day **before** the posted beginning date of the session. Classes will be conducted through the posted ending date.

**Integrative Sessions.** All courses meet together weekly in Integrative Sessions. Integrative Sessions are dedicated to the integration of the various courses currently being taught and the integration of these with Christian faith and stewardship. In these sessions all faculty and staff work cooperatively in interdisciplinary seminars, stewardship workshops and field trips on an overarching stewardship theme or current environmental problem or issue. These sessions include devotional content focused on Christian environmental stewardship. In

addition to Integrative Sessions, each course engages in at least one cooperative project or field trip with one other course.

**Course Scheduling.** Course scheduling is subject to change. Check the *timetable* at [www.ausable.org](http://www.ausable.org) for the latest information.

## COURSE OFFERINGS 2007

Three-week sessions are given in January and May and are conducted by the Institute during which students take one course. Five-week sessions are given in two Summer Sessions in which students take two courses per session. Syllabi for all Au Sable courses are on-line at [www.ausable.org](http://www.ausable.org).

## JANUARY SESSION

December 29 (Fri), 2006 - January 17 (Wed), 2007

### AU SABLE - GREAT LAKES

**Biol 310 Winter Biology** 4 cr; 100 contact hrs.

Biology and environment of northern Michigan plants and animals in winter conditions. Lectures, films, and field experience. Prerequisite: one course in biology. *Field*. Newhouse.

**Biol 346 Winter Stream Ecology** 4 cr; 100 contact hrs.

Geological, physical, and chemical features of streams in winter, with a focus on ecological interactions and applications to the stewardship of streams and watersheds. Prerequisite: one year of general biology. *Field, Applied, Interdisciplinary*. Mahan.

**EnvSt/Rel 350 Environmental Ethics** 4 cr; 100 contact hrs.

This course addresses the major ethical issues involving humans and the rest of Creation. In addition to developing a Christian environmental ethic from a stewardship perspective, the course considers such movements and issues as deep ecology, animal rights, wilderness ethics, wildlife management, biodiversity, and population growth. Emphasis is on considering concrete, current ethical debates. *Interdisciplinary*. Bouma.

# ACADEMICS

December 27 (Wed), 2006-January 17 (Wed), 2007

## AU SABLE - INDIA

### **Biol 427 Ecology of the Indian Tropics** 4 cr; 120 contact hrs.

Tropical ecology of South India, including an introduction to and comparative analysis of coastal ecosystems, the plains, and montane tropical ecosystems of the Western Ghats including altitudinal zonation. The course will be taught on-site at a variety of ecosystem preserves and national parks. If suitable arrangements can be made a number of ecosystems will be studied on the Andaman Islands. Topics include tropical ecosystem structure and function, adaptations of flora and fauna, biodiversity surveys, past and present human interaction with the landscape, and autecology of selected plant and animal species. Prerequisite: upper division standing and at least one ecology course (preferably completed at Au Sable) or permission of the Au Sable Representative. *Field, Applied, Interdisciplinary.* Gelderloos, Chelleraj, and Relton.

## MAY SESSION

May 16 (Wednesday) - June 5 (Tuesday), 2007

## AU SABLE - GREAT LAKES

### **Biol 305 Ornithology: Eastern Birds** 4 cr; 100 contact hrs.

Biology, behavior, ecology and identification of birds. Work is primarily conducted in the field and covers the major habitats of northern lower Michigan, including wetlands, lakes, rivers, forests, dunes, and open field communities. Emphasis will be placed on identification of the spring bird fauna of northern lower Michigan by sight and by call. Prerequisite: one course in introductory biology or zoology. *Field.* Petersen

### **Biol 315 Woody Plants** 4 cr; 100 contact hrs.

Taxonomy, ecology, management, and stewardship of trees and shrubs. Presents the systematic botany of local woody flora including identification by foliage, twigs, wood, and bark, and trees of major economic and ecological importance worldwide. Given in the context of ethical and global questions of deforestation, global warming trends, old growth forest values, lumbering, forest ecosystem restoration, and land stewardship. Prerequisite: one year of general biology or one semester of botany. *Field, Applied.* Warners or Musselman.

### **Biol 361 Field Natural History** 4 cr; 100 contact hrs.

Springtime plants and animals, their field identification, field biology, behavior and landscape context, with a focus on spring flora, amphibia and birds. Offered between the spring college semester and the end of the spring high school semester to provide prospective teachers and naturalists with an opportunity to investigate the natural history of this very active time of year. *Field, Interdisciplinary.* Staff

## AU SABLE - SOUTH FLORIDA

### **Biol/Agric/Geog 343 Tropical Agriculture and Missions**

4 cr; 100 contact hrs.

An introduction to tropical agriculture and training of present and prospective workers with resource-poor farmers. Topics include tropical agriculture techniques, on-site practical work with tropical plants and small animals, growing food under difficult conditions, and appropriate technologies. Utilizes ECHO's fruit arboretum and the six settings of its Global Village: tropical rainforest, semi-arid, hillside farming, tropical lowlands, rooftop and urban gardens, and a schoolyard. *Field, Applied, Interdisciplinary.* Unander.

## AU SABLE - PACIFIC RIM

### **Biol 306 Ornithology: Western Birds** 4 cr; 100 contact hrs.

Biology, behavior, ecology and identification of birds. Work is primarily conducted in the field and covers the major habitats of the Pacific Northwest, including the open sea, seacoast, forests, mountains, and prairies. Emphasis will be placed on identification of the spring bird fauna of Whidbey Island and the Puget Sound by sight and by call. Prerequisite: one course in introductory biology or zoology. *Field.* Staff.

### **Biol 318 Marine Biology** 4 cr; 100 contact hrs.

Biology of marine plants and animals in the field. The focus of the course is on intertidal life and marine ecology in oceanic and geophysical context. Includes trophic dynamic relationships of eel grass communities and the intertidal zone, workings of the island systems of Puget Sound, ecological roles of sea birds and fishes, population and community structure dynamics, exploitation and oceanic microbialization, and biogeochemical processes and their linkages with the biosphere. Marine stewardship and effects of human activity on the marine environment are integral to the course. Prerequisite: general biology or permission of professor. *Field.* Wakefield.

# ACADEMICS

## SUMMER SESSION I

June 7 (Thursday) - July 11 (Wednesday), 2007

### AU SABLE - GREAT LAKES INTEGRATIVE SESSION

All courses include attendance and participation in integrative sessions which meet on Wednesdays

**Biol/Geol/Geog 301 Land Resources** 4 cr; 100 contact hrs.

Systems-level perspective on land forms and ecosystems. Includes analysis and interpretation of on-site data recorded in the field, remote-sensing data derived from satellite and low-altitude aerial imagery, and geographic information systems (GIS). Field trips to and analysis of forests, bogs, marshes, dunes, and rivers. Includes application to policy and land use planning. Prerequisite: one year of introductory science. Tu, F. *Field, Applied, Interdisciplinary*. J. Bratton

**Biol 311 Field Botany** 4 cr; 100 contact hrs.

Field identification and ecology of vascular plants as components of natural communities. Emphasis is placed upon on-site examination of plants in communities of the region. Plants difficult to study under field conditions are brought to the laboratory for microscopic examination and identification. Ecological features such as community stratification and plant zonation along ecological gradients are examined. Prerequisite: one year of general biology or one semester of botany. M, Th. *Field*. Sytsma.

**Biol 321 Animal Ecology** 4 cr; 100 contact hrs.

Interrelationships between animals and their biotic and physical environments, emphasizing behavioral aspects. A field course that centers on the ecology of northern Michigan fauna from a stewardship perspective. Included are individual student projects. Prerequisite: one year of introductory science. Tu, F. *Field*. Lee.

**Biol 322 Aquatic Biology** 4 cr; 100 contact hrs.

Ecology, identification, systematics, culture, and care of aquatic plants and animals, and adaptations to freshwater environments. Aquatic life is studied in lakes, ponds, bogs, marshes, and streams and in the laboratory. The course assesses human impacts on aquatic species and ecosystems, presents procedures for the stewardship of aquatic habitats, and introduces aquatic restoration ecology. Prerequisite: one year of general biology or one semester each of general zoology and general botany. M, Th. *Field*. Ippolito.

**Biol/Geog 355 Watershed Stewardship**

4 cr; 100 contact hrs.

Principles of watershed ecology. Includes principles and practice of community-based water monitoring and watershed management for developing and developed countries and data access and analysis using an online relational database and data-to-action strategies. Designed for students in science and public policy, including students interested in missions and development and agencies involved in environmental assessment and community development. Prerequisite: One year of general biology. Tu, F. *Field, Applied, Interdisciplinary*. Deutsch.

**Biol/Chem/Geog 390 Directed Individual Study**

1-4 cr; 15 - 60 contact hrs.

Field or laboratory study of a problem selected by the student in consultation with a professor, and presented as a written proposal in advance of the session in which the study is to be conducted. Normally, problems are outgrowths of previous coursework with a given professor at Au Sable. Prerequisite: A study proposal including goals and objectives, methods, protocols for evaluation; to be signed by the professor and program director. Staff.

**Biol 411 Advanced Field Botany** 4 cr; 100 contact hrs.

Extended field identification and ecology of vascular plants as components of natural communities. Selection and study of a specific plant community for intensive taxonomic and ecological research and preparation of herbarium specimens according to established museum techniques. Taught concurrently with Biol 311. Students taking this course must take one other course or enroll in Biol 499 Research for 2 credits. Prerequisite: Biol 311 Field Botany taken at another Au Sable Institute location. M, Th. *Field*. Sytsma.

**Biol/Geog 471 Conservation Biology** 4 cr; 100 contact hrs.

Principles of conservation biology with applications to sustainable human society and biospheric integrity. An integrative approach to biology and society that interrelates population biology, ecological principles, biogeochemical cycles, ecosystem functions, and human society in the context of biospheric degradation. The course develops a stewardship perspective rooted in biological principles and directed at conservation of plant and animal species, biotic communities, ecosystems, and human society. Included are topics of human development, poverty, and economic growth. Prerequisite: one year in biology and one course in ecology, or permission of professor. M, Th. *Field, Applied, Interdisciplinary*. Reed.

# ACADEMICS

## **Biol/Chem/Env.St/Geog. 490 Research Methods I** 1cr, 20 contact hrs.

This course is designed to prepare natural science majors to conduct scientific field research. It introduces students to experimental design and statistics relevant to scientific research. Students then select a research topic feasible for investigation; pose a relevant, scientifically testable question or a hypothesis. Students, in conjunction with a research mentor, prepare a research proposal and initiate an investigation. Prerequisite: Third year status, previous AuSable course, and research interest. Reed.

## **Biol/Chem/Geog 499 Research** 1-6 cr; 15-90 contact hrs. Participation in an ongoing research project of the Institute. Prerequisite: A research proposal including goals and objectives, methods, protocols for evaluation; to be signed by the professor and program director. Staff.

## **Biol/EnvSt/Geog 990 Post-Baccalaureate Directed Study** 1-6 cr; 15-90 contact hrs.

Research and/or preparation of an observational and reflective field journal that meets or exceeds requirements for such journals in two Institute courses. This journal is prepared according to the standards that parallel standards for writing a graduate masters thesis. This course can be extended across academic sessions and sites by prior arrangement. Staff.

## **AU SABLE - PACIFIC RIM INTEGRATIVE SESSION**

**All courses include attendance and participation in integrative sessions which meet on Wednesdays**

## **Biol/Geog 266 Field Biology of the Pacific Northwest** 4 cr; 100 contact hrs.

Biology and environment of plants and animals, nature of the physical environment, and biogeography of the Pacific Rim, in stewardship perspective. Lectures, films, and extensive field work. Prerequisite: one course in biology. M, Th. *Field.* Sheldon.

## **Biol 311 Field Botany** 4 cr; 100 contact hrs.

Field identification and ecology of vascular plants as components of natural communities. Emphasis is placed upon on-site examination of plants in communities of the region. Plants difficult to study under field conditions are brought to the laboratory for microscopic examination and identification. Ecological features such as community stratification and plant zonation along ecological gradients are examined. Prerequisite: one year of general biology or one semester of botany. M, Th. *Field.* Popescu.

## **Biol/EnvSt/Phil 351 Bioethics: Bridge to the Future** 4 cr; 100 contact hrs.

The dilemmas of dangerous knowledge in environmental and medical activities are investigated, including stem cell research and applications, fetal tissue research, human gene manipulation, transgenic bioengineering, genetically modified crops, release of bioengineered organisms into natural ecosystems, and emerging disease, the ethics of environmental activism, and the religious roots of ethical values. This course uses a seminar format in which topics are presented by student teams including presentations, panel discussions and formal debate. Current attempts to develop a theological basis for bioethics are considered. *Interdisciplinary.* M, Th. Staff

## **Biol 377 Marine Invertebrates** 4 cr; 100 contact hrs.

A study of invertebrate taxonomy, ecology, life histories, and economic importance. Field methods are stressed. Prerequisite: one year of general biology or one semester of general zoology. Tu, F. *Field.* Staff.

## **Biol/Chem/Geog 390 Directed Individual Study** 1-4 cr; 15-60 contact hrs.

Field or laboratory study of a problem selected by the student in consultation with a professor, and presented as a written proposal in advance of the session in which the study is to be conducted. Normally, problems are outgrowths of previous coursework with a given professor at Au Sable. Prerequisite: A study proposal including goals and objectives, methods, protocols for evaluation; to be signed by the professor and program director. Staff.

## **Biol 411 Advanced Field Botany** 4 cr; 100 contact hrs.

Extended field identification and ecology of vascular plants as components of natural communities. Selection and study of a specific plant community for intensive taxonomic and ecological research and preparation of herbarium specimens according to established museum techniques. Taught concurrently with Biol 311. Students taking this course must take one other course or enroll in Biol 499 Research for 2 credits. Prerequisite: Biol 311 Field Botany taken at another Au Sable Institute location. M, Th. *Field.* Popescu.

## **Biol 452 Intro to Environmental Medicine and Public Health** 4 cr; 100 contact hrs

Introduction to the fundamentals of environmental health, with an introduction to environmental epidemiology and environmental medicine. Environmental pollutants and their sources, effects of environmental pollution on the environment and public health, environmental control agencies, methods of pollution control, environmental law and policy, environmental and public health research agencies, environmental epidemiology, environmental medicine, and environmental stewardship are included. Field trips and lab assignments complement the materials covered in lectures. Open to all students with preference given to pre-medical students and students exploring a career in environmental health and public health. Prerequisite: two years of biology and one year of chemistry. Tu, F. *Field.* Applied. Staff.

# ACADEMICS

## **Biol 477 Plant Ecology** 4 cr; 100 contact hrs.

Interrelationships between plants and their physical and biotic environments; plant-animal interactions; plant community composition and development; and modern methods of ordination and quantitative analysis with applications to conservation and stewardship. *Field, Applied. (Not offered in 2007)*

## **Biol 483 Restoration Ecology Applications**

4 cr; 100 contact hrs.

Application of the principles of restoration ecology to ecosystem restoration. Provides direct experience in utilizing methods and techniques of ecological restoration in the field, and includes applications to policy, land stewardship, and the analysis and solution of important and widespread problems. Includes ecological applications to environmental issues of widespread importance. Prerequisite: one year of biology and one course in ecology or field biology, or permission of professor; Biol 482 is recommended, but not required. Tu,F. *Field, Applied, Interdisciplinary.* Van Dragt.

## **Biol 486 Land Stewardship Ecology** 4 cr; 100 contact hrs.

Ecological techniques for landscape preservation and sustainability. This course develops and applies practical procedures and techniques for ecosystem and landscape preservation, stewardship of natural and historical landscapes, sustainable agricultural and ecological systems, and energy and natural resources conservation. Field studies include preservation and extension of Pacific Northwest Prairies, stewardship of old growth forests, and the design and management of ecological and historical reservations. A practical field laboratory is included in which techniques are applied to Smith Prairie and Ebey's Landing National Historical Reserve. Prerequisite: one year of biology or two years of natural sciences. *Field, Applied, Interdisciplinary. (Not offered in 2007).*

## **Biol/Geol/Soc 489 Biosphere Science** 4 cr; 100 contact hrs.

Investigation of the earth's attributes that support life on a regenerable, sustainable basis. Applications of the earth systems science, environmental biology, and eco-psychology to understanding earth as home. Set in the context of biology and behavior of human beings and other organisms at extremes of temperature, pressure, altitude and gravity within sub-marine, near-earth and lunar space. Includes application to design of artificial habitats and personal protective equipment to sustain humans in extreme environments. Includes high altitude and sub-surface field work. Prerequisites: swimming competence; SCUBA not required, but beneficial. *Field, Applied, Interdisciplinary. (Not offered in 2007).*

## **Biol/Chem/Geog 499 Research** 1-6 cr; 15-90 contact hrs.

Participation in an ongoing research project of the Institute. Prerequisite: A research proposal including goals and objectives, methods, protocols for evaluation; to be signed by the professor and program director. Staff.

## **Biol/EnvSt/Geog 990 Post-Baccalaureate Directed Study**

1-6 cr; 15-90 contact hrs.

Research and/or preparation of an observational and reflective field journal that meets or exceeds requirements for such journals in two Institute courses. This journal is prepared according to the standards that parallel standards for writing a graduate masters thesis. This course can be extended across academic sessions and sites by prior arrangement. Staff.

## SUMMER SESSION II

July 16 (Monday) - August 17 (Friday), 2007

### AU SABLE - GREAT LAKES INTEGRATIVE SESSION

All courses include attendance and participation in integrative sessions which meet on Wednesdays

## **Biol 302 Limnology (Water Resources)** 4 cr; 100 contact hrs.

Field study of lakes and other freshwater systems with applications to planning and management. Includes an introduction to limnology and investigation of representative lakes, streams, and wetlands of the region and compares the North American Great Lakes with the other great lakes of the world and their stewardship. Prerequisite: one year of general biology and one year of general chemistry. M,Th. *Field, Applied, Interdisciplinary.* Korstad.

## **Biol 312 Insect Biology and Ecology** 4 cr; 100 contact hrs.

A study of insect taxonomy, ecology, life histories, and economic importance. Special attention is given to environmental stewardship issues including use of insecticides, biological control, integrated pest management, and impact of cultivation on formation of pest faunas. Field methods are stressed. Prerequisite: one year of general biology or one semester of general zoology. Tu,F. *Field.* Burkholder.

## **Chem 332 Environmental Chemistry** 4 cr; 100 contact hrs.

Principles and analysis of chemical movement and distribution – both natural and human-induced – in natural environments. Sampling and analytical methods are included for water, soil, and air. Work is conducted both on site in natural habitats and the laboratory. Prerequisite: one year of general chemistry and one semester of either biochemistry or organic chemistry. Tu,F. *Field, Applied.* Brouwer.

# ACADEMICS

## **Biol 333 Summer Flora** 4 cr; 100 contact hrs.

Taxonomy, ecology, and conservation of vascular plants in summer based upon on-site examination of plants in natural terrestrial, wetland, and aquatic communities. Presents the systematic botany of vascular plants and introduces ethical and global questions of regional and global plant biodiversity, ecosystem restoration, and landscape stewardship. Prerequisite: one year of general biology or one semester of botany. M, Th. *Field*. Crow.

## **Biol 345 Wildlife Stewardship** 4 cr; 100 contact hrs.

Ecology, conservation, and stewardship of wildlife species and their habitats. Includes growth and structure of natural and managed populations, environmental and human social factors affecting wildlife communities, and wildlife conservation. The course is set in the context of the historical development of the field from management, to ecology, and to the land ethic of Leopold. Includes management and stewardship of non-game and endangered species, and long-term prospects of wildlife in changing environmental, climatic, and social contexts. Prerequisite: one course in biology, or permission of professor. Tu, F. *Field*, *Applied*, *Interdisciplinary*. Van Deelen.

## **EnvSt/Educ 380 Principles of Environmental Education** 4 cr; 100 contact hrs.

This field-based course introduces the principles, philosophy and conceptual understandings necessary for the practice and profession of environmental education and interpretation. Classes focus on the theoretical, technical and personal aspects of the field and are conducted in interactive format, including exercises, discussion, presentations, field trips and application. Emphasis is on working in structured non-formal educational and non-captive settings. Includes concluding applications to education of the general public and children. This course does not duplicate other courses that teach nature study. Prerequisite: one semester of natural science. *Field*, *Applied*. Keys. **(Not offered in 2007)**

## **Biol/Chem/Geog 390 Directed Individual Study** 1-4 cr; 15-60 contact hrs.

Field or laboratory study of a problem selected by the student in consultation with a professor, and presented as a written proposal in advance of the session in which the study is to be conducted. Normally, problems are outgrowths of previous coursework with a given professor at Au Sable. Prerequisite: A study proposal including goals and objectives, methods, protocols for evaluation; to be signed by the professor and program director. Staff.

## **Biol 482 Restoration Ecology** 4 cr; 100 contact hrs.

Ecological and theoretical foundations for ecosystem and biotic community restoration. This course develops ecological principles for ecosystem restoration and applies them to redeeming and restoring degraded and damaged ecosystems and endangered species. Field studies include analysis of restoration and rehabilitation work with the Kirtland Warbler, an officially designated wild river, coastal dunes, kettle-hole bogs, deforested lands, degraded residential and farming sites, and abandoned oil wells. A practical field laboratory is included in which techniques are applied to a specific site. Prerequisite: one year of biology and one course in ecology or field biology, or permission of professor. M, Th. *Field*, *Applied*, *Interdisciplinary*. Terman.

## **Biol/Chem/Env.St/Geog. 491 Research Methods II** 1 cr, 20 contact hrs.

This course follows Research Methods I with an exploration of data analysis, report writing, and presentation and poster preparation. Prerequisite: Research Methods I. Reed.

## **Biol/Chem/Geog 499 Research** 1-6 cr; 15-90 contact hrs.

Participation in an ongoing research project of the Institute. Prerequisite: A research proposal including goals and objectives, methods, protocols for evaluation; to be signed by the professor and program director. Staff.

## **Biol/EnvSt/Geog 990 Post-Baccalaureate Directed Study** 1-6 cr; 15-90 contact hrs.

Research and/or preparation of an observational and reflective field journal that meets or exceeds requirements for such journals in two Institute courses. This journal is prepared according to the standards that parallel standards for writing a graduate masters thesis. This course can be extended across academic sessions and sites by prior arrangement. Staff.

# ACADEMICS

July 16 (Monday) - August 17 (Friday), 2007

## AU SABLE - PACIFIC RIM INTEGRATIVE SESSION

All courses include attendance and participation in integrative sessions which meet on Wednesdays

**Geol/Geog 217 Field Geology:** Volcanoes, Glaciers and Seacoast of the Pacific 4 cr; 100 contact hrs

Geology as the context of ecosystems and human settlements. An introductory geology course with emphasis placed upon field observations of geological processes, both past and present. Coastal and montane geomorphology is a dominant theme. Also included are such topics as mineral and rock classification, seismology, volcanism, erosion, climatic effects, map interpretation, and fossil identification. Prerequisite: one year of introductory science. Students who already have taken Field Geology of the Great Lakes Region will also conduct individual field project work. M,Th. Field. Hillman.

**Biol/Agric/Geog 303 Ecological Agriculture: Farms and Gardens for Sustainability** 4 cr; 100 contact hrs.

Environmental analysis and natural resources in relation to people and policy. The focus of 303 is on ethnobotany, ecological agriculture, and land stewardship. It employs a discussion format both in classroom and field settings. Its emphasis is grappling with difficult practical and ethical problems and issues that require deep and persistent thought. Enrollment in Ecological Agriculture, Environmental Chemistry, a Natural Resources Practicum, or an Environmental Stewardship Practicum is required of all Au Sable Fellows. M,Th. Field, Applied, Interdisciplinary. Vos.

**Biol/Geog 304 Global Development and Ecological Sustainability** 4 cr; 100 contact hrs.

Environmental analysis and natural resources in relation to society and development issues. The focus of 304 is on ecological sustainability and sustainable society in the context of the various factors that are bringing environmental degradation and impoverishment of people and cultures. It deals with topics of tropical agriculture, hunger, poverty, international debt, appropriate technology, relief programs, missionary earthkeeping, conservation of wild nature, land tenure, and land stewardship. It employs a discussion format both in classroom and field settings. Its emphasis is on grappling with difficult practical and ethical problems and issues that require deep and persistent thought. Enrollment in Ecological Agriculture, Environmental Chemistry, a Natural Resources Practicum, or a Stewardship Practicum is required of all Au Sable Fellows. Tu,F. Applied, Interdisciplinary. Pelant.

**Biol 359 Marine Mammals** 4 cr; 100 contact hrs.

Biology, behavior, ecology, identification, and conservation of the marine mammals of the Pacific Rim. This study area covers some major habitats in Puget Sound and the Salish Sea, with attention to the diving physiology, social behavior, and communications of whales and seals. The course aims to develop a stewardship perspective rooted in biological principles and directed at the global conservation of marine mammals and their ecosystems. Special attention is given to their use by cultures of the region in order to understand current issues. Prerequisite: one year of general biology or one semester of zoology. A course in anatomy and/or physiology is recommended. M,Th. Field. Wakefield or Staff.

**Biol/Chem/Geog 390 Directed Individual Study** 1-4 cr; 15-60 contact hrs.

Field or laboratory study of a problem selected by the student in consultation with a professor, and presented as a written proposal in advance of the session in which the study is to be conducted. Normally, problems are outgrowths of previous coursework with a given professor at Au Sable. Prerequisite: A study proposal including goals and objectives, methods, protocols for evaluation; to be signed by the professor and program director. Staff.

**Biol 478 Alpine Ecology: Life in Context of Snow and Ice** 4 cr; 100 contact hrs.

Ecology of the mountains of the Pacific Northwest, with particular attention to adaptation of plant and animal life to montane climates and altitudes, and analysis and interpretation of altitudinal zonation of biotic communities with applications to latitudinal biogeography. Also included are topics of physiological responses of organisms to reduced oxygen levels, low temperatures and high altitude radiation regimes. Field work includes on-site studies in the Olympic Mountains of the Olympic Peninsula. Tu,F. Field. Steinkamp.

**Biol 487 Forest Ecology** 4 cr; 100 contact hrs.

Integrative analysis of terrestrial ecosystem processes in forested regions and their inter-linkages with energy flow, nutrient cycling, hydrology, and the composition and dynamics of the atmosphere. The course utilizes regional forests for study of plants/soil interactions, biotic community and ecosystem analysis, ecological functions of forests in the landscape, and forest stewardship. Prerequisite: one year in biology and one course in ecology, or permission of professor. Tu,F. Field. Foster

**Biol/Chem/Geog 499 Research**

1-6 cr; 15-90 contact hrs.

Participation in an ongoing research project of the Institute. Prerequisite: A research proposal including goals and objectives, methods, protocols for evaluation; to be signed by the professor and program director. Staff.

**Biol/EnvSt/Geog 990 Post-Baccalaureate Directed Study**

1-6 cr; 15-90 contact hrs.

Research and/or preparation of an observational and reflective field journal that meets or exceeds requirements for such journals in two Institute courses. This journal is prepared according to the standards that parallel standards for writing a graduate masters thesis. This course can be extended across academic sessions and sites by prior arrangement. Staff.

**Internships and Teaching Assistantships are available to students who have completed one or more academic terms at Au Sable Institute, who are in good standing, and who meet the qualifications of these positions.**

## INTERNSHIPS

### AGRICULTURAL MISSIONS INTERNSHIP – FLORIDA

Agricultural Missions Interns participate in cultivation and seed production of under-utilized food plants under the direction of Dr. Martin Price, Director of ECHO (Educational Concerns for Hunger Organization) in Ft. Myers, Florida. Interns should have completed three of more courses at Au Sable including, if possible, Field Botany and Ecological Agriculture. Persons selected for this internship are those who are seriously considering a vocation in agricultural and ecological missions in the Third World. Duration of this internship varies from several months to one year. Housing, health insurance, food harvested from the farm and a US \$350 per month stipend are provided. Interested persons should contact Mr. David Balsbaugh at ECHO for more information (ECHO, 17391 Durrance Road, N. Ft. Myers, FL 33917).

### EDEN PROJECT INTERNSHIP – UNITED KINGDOM

This internship offers the opportunity to work with staff in the development of an exciting new botanical project in Cornwall, England. The Eden Project seeks to interpret the importance of plants to people and to promote sustainable development. Constructed in an abandoned clay mine, the project includes a 55-meter-high enclosed tropical rain forest biome covering almost 5 acres, a one and one half acre Mediterranean biome, and extensive outdoor gardens of economically important plants. A large nursery grows plants for the exhibits. The project has a large educational program for children and adults. Opportunities for interns exist in horticulture, education and interpretation. The period of this internship normally is for three months and is under the direction of Prof. Sir Ghilleen Prance, the Eden Project's Scientific Director. The Au Sable Institute will meet travel costs and interns will pay for their living expenses. Interested persons should apply to the Au Sable Institute Registrar Office.

### ENVIRONMENTAL CHEMISTRY INTERNSHIPS – GREAT LAKES

**Schedule.** An internship in Environmental Chemistry is offered for the duration of Summer Session II.

**Responsibilities.** The Environmental Chemistry Intern works under the direction of the Environmental Chemistry professor for 8 hours per day, three days of the week for

the five-week session. The interns perform various environmental analyses as a service for Limnology, other Au Sable courses, research projects, local citizens, community groups, and regional planning commissions within the capabilities of the Environmental Chemistry Laboratory and scope of the Institute objectives.

**Stipend.** The interns receive room and board plus a modest wage.

**Eligibility.** The internship is awarded to individuals based on their previous training and performance in the chemistry laboratory. Applicants should have had at least one year of general chemistry, one year of organic chemistry and one semester of analytical chemistry. Highest consideration is given to students who have completed the environmental chemistry course at Au Sable and/or have the prerequisite training and favorable recommendations regarding their abilities to perform in this capacity.

**Course Work.** The intern may elect, but is not required, to take an Institute course or, upon recommendation of the home college, may use the experience as a "practicum" or "field experience" to meet requirements of the home institution. Because all Institute courses include two days of class plus the weekly Integrative session, the chemistry intern who enrolls in a course is expected to work additional hours during the week to meet the work requirement of 24 hours per week.

**Application Procedure.** Complete the regular application form for Au Sable Fellowships and Grants-in-Aid but indicate at the top of the form that you wish to be considered for the Environmental Chemistry Internship. Attach a list of college chemistry courses taken and ask for recommendations from at least one science faculty member who can comment on your skills. First consideration will be given to those who apply by March 15 but all applications will be considered until positions are filled.

### ENVIRONMENTAL EDUCATION INTERNSHIPS – GREAT LAKES

**Schedule.** Three Environmental Education Internship Sessions are offered at Au Sable during the school year for those who desire to learn to communicate their love of the Creation to others. Interns may participate in any of the following sessions:

2007 Winter Internship	January 29 - March 2, 2007
2007 Spring Internship	April 2 - June 1, 2007
2007 Autumn Internship	Sept 10 - Nov 9, 2007

# INTERNSHIPS

**Training and Responsibilities.** The first week of the internship consists of intense training. This training, in addition to seminar/discussion sessions throughout the internship, consists of philosophy and principles of environmental education, current learning theory, methods of effectively communicating in field and classroom settings, and preparation for upcoming teaching using the Au Sable K-12 Environmental Studies Curriculum. In subsequent weeks, interns put this information to work as they teach K-12 students, under supervision of the Coordinator of Community Programs, Patricia Fagg.

The internship is designed to develop confidence and competence in teaching, particularly in the area of environmental education. Ample opportunity to teach is given, with interns often logging over 150 teaching hours within each internship session. Teaching by interns is given periodic critiques, including evaluations using videotapes. Interns are exposed to a wide range of environmental education curricula and professional organizations. Special emphasis is placed on the role of environmental education in carrying out our mandate as stewards of God's Creation.

**Stipend.** Interns receive housing plus a stipend of US \$150 per week.

**Eligibility.** Applicants should have completed their junior year of college and have a deep interest in Christian environmental stewardship. Preference is given to those who have been students at the Institute or who have coursework from one of the Au Sable Participating Colleges or a member college of the Council for Christian Colleges & Universities.

**Course Credit.** Interns, at their option, may arrange for course credit, following approval by their college teacher education program, in Environmental Teaching Methods (Educ330), Directed Teaching: Elementary (Educ345), and/or Directed Teaching: Secondary (Educ346). Tuition is at the rate of the home college.

**Application Procedure.** A letter of application, indicating the sessions for which you are applying, and resume should be sent to Environmental Education Coordinator, Au Sable Institute, 7526 Sunset Trail NE, Mancelona, Michigan 49659. Please list three references, two of which are faculty from your home college or university.

## HEBER AU SABLE INTERNSHIP – INDIA

This internship is available through the Heber Au Sable Institute in Tamil Nadu, South India from November through April. The intern will work with selected faculty members and researchers from Bishop Heber College in a research area of interest to the intern. Some options include ecology of South India, mammalian and ornithological studies, and issues in environmental education in a developing country. The Au Sable Institute will meet international travel costs. Lodging for the duration of the internship, travel and food on days of fieldwork will be provided by Heber Au Sable Institute. The student will be responsible for living costs in India apart from housing and fieldwork expenses, but will be assisted in raising support for on-site costs in South India with materials provided by the Au Sable Institute. Interested persons should apply to the Au Sable Institute Registrar Office at least 9 months prior to the intended dates of departure.

## TEACHING ASSISTANTSHIPS

### TEACHING ASSISTANTSHIPS – GREAT LAKES AND PACIFIC RIM

Teaching Assistantships are available in support of selected Institute courses. These are granted only to highly qualified students who already have taken the course in which they will be assisting, and must meet the standards set by the professor of the course. Teaching Assistantships often are available for Field Botany and Winter Stream Ecology as well as for certain other courses. Interested Au Sable students should contact the Institute Registrar and the professor in charge of the course for information on application procedures.

E-mail messages to Faculty should be addressed to [administration@ausable.org](mailto:administration@ausable.org) and will be forwarded.

**Peter W. Bakken.** A.M.Div., Ph.D., University of Chicago. Au Sable Institute Fellow, Coordinator for Public Policy, Wisconsin Council of Churches.

**Jonathan D. Bakker.** MSc, University of Regina; Ph.D., Northern Arizona University. Research Specialist, Ecological Restoration Institute, Northern Arizona University and Au Sable alumnus.

**R. J. "Sam" Berry.** M.A., Caius College, Cambridge; Ph.D., D.Sc., University College, London. Prof. of Genetics, University College, London, and Au Sable Institute Fellow.

**Gilbert W. Blankespoor.** M.A.T., Washington University; Ph.D., Kansas State University. Emeritus Professor of Biology, Augustana College.

**Dorothy Boorse.** M.S., Cornell University; Ph.D., University of Wisconsin-Madison. Associate Professor of Biology, Gordon College. Au Sable alumna.

**Rolf Bouma.** J.D., The University of Michigan; M.Div., Th. M., Calvin Theological Seminary; Ph.D., Boston University. Pastor for Academic Ministries, Christian Reformed Campus Chapel and Lecturer, Program in the Environment, The University of Michigan.

**Susan P. Bratton.** M.A., Fuller Theological Seminary; Ph.D., Cornell University. Lindemann Chair of Science, Technology and Society, Whitworth College.

**John F. Bratton.** Ph. D., University of California Berkeley. U.S. Geological Survey, Woods Hole Field Center.

**Henry Brouwer.** Ph.D., University of Western Ontario. Prof. of Chemistry, Redeemer University College.

**Douglas Bulthuis.** M.S., Michigan State University; Ph.D., LaTrobe University. Estuarine Research Scientist, Padilla Bay National Estuarine Research Reserve.

**Timothy J. Burkholder.** M.S., Ph.D., The Ohio State University. Prof. of Biology, Taylor University.

**Jeyakar Chellaraj.** Professor Emeritus of Chemistry, Bishop Heber College and Au Sable Institute Fellow.

**David R. Clements.** Ph.D. Queen's University, Kingston, Ont., Assoc. Prof. of Biology and Environmental Studies, Trinity Western University, Langley, British Columbia.

**Harry Cook.** M.Sc.A., University of British Columbia; D.Sc., Free University of Amsterdam. Emeritus Professor of Biology, The King's University College; Adjunct Professor of Biology, University of Alberta.

**Garrett Crow.** M.S., Ph.D., Michigan State University. Professor of Botany and Director, Hodgdon Herbarium, University of New Hampshire.

**Jeffrey A. Davis.** M.S., Tulsa University. Environmental Science Teacher, Mount Tabor High School, Winston-Salem NC.

**William G. Deutsch.** M.A., SUNY-Binghamton; Ph.D., Auburn University. Specialist, Auburn University.

**Calvin B. DeWitt.** M.A., Ph.D., The University of Michigan. Prof. of Environmental Studies, Gaylord Nelson Institute for Environmental Studies, University of Wisconsin-Madison, and President Emeritus, Au Sable Institute.

**Job Ebenezer.** M.Sc. University of Madras; M.Sc. India Institute of Science; Ph.D. Stevens Institute of Technology. Visiting Professor of Engineering, Messiah College.

**Susan Drake Emmerich.** M.S., University of New Orleans. Ph.D., University of Wisconsin-Madison. Emmerich Environmental Consulting, Palos Heights, IL.

**Timothy M. Evans.** M.S., University of Wyoming; Ph.D., University of Wisconsin-Madison. Assoc. Professor of Biology, Hope College.

**David K. Foster.** M.S., Ph.D., University of Wisconsin-Madison; Associate Prof. of Biology and Environmental Science, Messiah College and Au Sable alumnus.

**Orin G. Gelderloos.** M.A., Western Michigan University; Ph. D., Northwestern University. Professor of Biology and Environmental Studies, The University of Michigan - Dearborn.

**Steven G. Hall.** M.S., University of California-Davis; Ph.D., Cornell University. Assistant Professor of Biological and Agricultural Engineering, Louisiana State University.

**Stephen R. Herr.** M.S. University of Iowa, Ph.D., Oklahoma State University, Professor of Environmental Science, Oral Roberts University.

**Charles "Tom" Hillman.** B.A., Western Washington University, B.Ed Eastern Washington University. M.S., Miami University, Ohio. Visiting Professor of Earth Sciences, Whitworth College.

**Elizabeth A. "Beth" Horvath.** M.S., California State University-Long Beach. Assistant Professor of Biology, Westmont College.

**Sir John Houghton, FRSc.** M.A., D. Phil., Jesus College, Oxford. Past Co-Chair, Working Group I, Intergovernmental Panel on Climate Change. Au Sable Institute Fellow.

**Daniel Ippolito.** Ph.D., University of Texas. Professor of Biology, Anderson University.

**Colin H. W. Jackson.** B.Sc. Southampton University, Certificate in Biblical and Cross-cultural Studies, All Nations Christian College. Ornithologist, A Rocha Trust.

**Robert Keys.** M.S., Gannon University, Erie, PA. Ph.D., Western Michigan University. Assistant Professor of Science, Cornerstone University.

**George K. Kinoti.** Postgraduate Diploma and Ph.D., School of Hygiene and Tropical Medicine, University of London. Professor of Zoology Emeritus, University of Nairobi and Executive Director, African Institute for Scientific Research and Development.

**John E. Korstad.** M.S., California State University-Hayward; M.S., Ph.D., The University of Michigan. Professor of Biology, Oral Roberts University.

**David C. Lahti.** Ph.D., Whitefield Institute at Oxford University; Ph.D., The University of Michigan. Post-doctoral Research Fellow, University of Massachusetts, Amherst. Au Sable Alumnus.

**Thomas E. Lee, Jr.** M.S. Angelo State University; Ph.D., Texas A&M University. Assoc. Professor of Biology, Abilene Christian University.

**David C. Mahan.** M.S., Ph.D., W.K. Kellogg Biological Station, Michigan State University. Registrar, Director of Recruitment and Great Lakes Program, Au Sable Institute.

**Austin R. Mast.** Ph.D., University of Wisconsin-Madison. Asst. Prof. of Biological Science and Director of the Robert K. Godfrey Herbarium, Florida State University. Au Sable alumnus.

# FACULTY & FELLOWS

**Alfred "Bud" Mayfield.** M.S., West Virginia University; Ph.D., State University of New York. Florida State Department of Forestry, Gainesville, Florida.

**Lytton A. Musselman.** M.S., University of Wisconsin - Milwaukee; Ph.D., University of North Carolina - Chapel Hill. Mary Payne Hogan Professor of Botany, Old Dominion University.

**Chris H. Newhouse.** M.S., Ph.D., Michigan State University. Professor of Biology, Spring Arbor College.

**Jesse Theuri Njoka.** M.S., Ph.D., University of California - Berkeley. Senior Lecturer, University of Nairobi.

**Robert K. Pelant.** D.V.M., University of Minnesota. Director of Pacific Rim Program, Au Sable.

**Kenneth L. Petersen.** M.S., Ph.D., Iowa State University. Professor of Environmental Studies, Bethel University.

**Ioana Popescu.** M.S., University of Bucharest; Ph.D., University of Cincinnati. Assistant Professor of Biology, Drury University.

**Sir Ghilleen T. Prance, FRS.** D. Phil. Malvern College, Worcestershire and Keble College, Oxford. Scientific Director, Eden Project and Visiting Professor, University of Reading. Au Sable Institute Fellow.

**Hal C. Reed.** M.S., Texas A. & M.; Ph.D., Washington State University. Prof. of Biology, Oral Roberts University.

**A. Relton.** M.S.W., Ph.D., Bharathidasan University. Prof. of Social Work, Bishop Heber College, Director of Heber Au Sable Institute, (India).

**Arthur G. Schwarz.** M.S., Walla Walla College; Ph.D., University of Saskatchewan. Instructor in Renewable Resources, University of Alberta.

**Joseph K. Sheldon.** Ph.D., University of Illinois. Professor of Biology, Messiah College.

**Neil Snow.** M.S. University of Wyoming; Ph.D. Washington University in St. Louis. Associate Professor of Biology, University of Northern Colorado.

**Harry H. Spaling.** M.E.D., University of Calgary; Ph.D., University of Guelph. Assoc. Professor of Environmental Studies and Geography, The King's University College.

**Ralph F. Stearley.** M.S., University of Utah; Ph.D., The University of Michigan. Prof. of Geology, Calvin College.

**Eric Steinkamp.** M.S. Stephen F. Austin State University; M.Div. Assembly of God Theological Seminary; Ph.D., Colorado State University. Professor of Environmental Science, Northwest College, Kirkland WA.

**Kenneth J. Sytsma.** M.A., Western Michigan University; Ph.D., Washington University. Professor of Botany, University of Wisconsin-Madison.

**Max Terman.** Ph.D., Michigan State University, Professor Emeritus of Biology, Tabor College

**Thomas J. Tilma.** Master's in Urban Planning, The University of Michigan; AICP Certificate. Public Improvements Administrator/Planner, Kent County, Michigan.

**David Unander.** M.S., Southern Illinois University; Ph.D., University of Minnesota. Professor of Biology, Eastern University, St. Davids, PA.

**Timothy R. Van Deelen.** M.S. University of Montana; Ph.D. Michigan State University. Assistant Professor of Wildlife Ecology, University of Wisconsin - Madison.

**Delmar Vander Zee.** M.A., Western Michigan University; M.S., Iowa State University; Ph.D., Washington State University. Prof. of Biology, Dordt College.

**Randall Van Dragt.** M.S., Cornell University; Ph.D., University of Rhode Island. Prof. of Biology, Calvin College.

**Fred Van Dyke.** M.S., University of Wisconsin-Madison; Ph.D., State University of New York, Syracuse. Prof. of Biology, Wheaton College.

**Pamela R. Veltkamp.** Ph.D., University of Colorado, Boulder. Associate Professor of Chemistry, McMurry University (Texas), and Au Sable alumna.

**Vernon M. Visick.** Ph.D., University of Chicago, Au Sable Institute Fellow. Exec. Dir., New College Madison.

**Ronald J. Vos.** M.A., Governors State University; Ph.D. Dissertator, South Dakota State University. Professor of Agriculture, Dordt College.

**Timothy Wakefield.** M.A., University of Missouri Kansas City; Ph.D., Auburn University. Assistant Professor of Biology, John Brown University.

**David P. Warners.** M.S., University of Wisconsin; Ph.D., The University of Michigan. Associate Professor of Biology, Calvin College.

**Leslie Ann Wickman.** M.S., Ph.D., Stanford University. Lecturer in Mathematics and Physics and Director, Center for Research in Science, Azusa Pacific University.

**John R. Wood.** M.S., Central Washington State College; Ph.D., University of California, Berkeley. Professor of Biology, The King's University College.

**Richard T. Wright.** M.A., Ph.D., Harvard University. Emeritus Professor of Biology, Gordon College and Au Sable Institute Fellow.

## EMERITUS FACULTY

**Alan I. Gebben.** M.A.T., George Peabody College and Vanderbilt University; Ph.D., The University of Michigan. Emeritus Professor of Biology, Calvin College.

**Richard G. Hodgson.** M.Div., Union Theological Seminary; Th.M., Westminster Theological Seminary. Assoc. Professor of Planetary Sciences, Dordt College.

## faculty development

College and university faculty members may participate in the Faculty Development Program on both the Great Lakes and Pacific Rim campuses for any one of several 8-day periods (Monday to Monday) during the second, third, and fourth weeks of both Summer Session I and Summer Session II.

To participate in the Program, individual arrangements must be made with the Site Director in consultation with the Academic Dean. Support for faculty in this program usually comes from faculty development funds of their home colleges and universities. Scholarships and financial aid may be available from the institute.

### PARTICIPATING COLLEGES and Official Faculty Representatives

The following colleges are Participating Colleges, have faculty who serve on the Institute's Academic Advisory Council, and are authorized to publish any or all Au Sable courses in their bulletins and catalogs as part of their regular course offerings. Students from these colleges are eligible for fellowships and grants-in-aid as described in this Bulletin. Contact your Au Sable Faculty Representative listed below for more information. E-mail messages can be addressed to Representatives at lastname@ausable.org (where "lastname" is the Representative's last name).

Abilene Christian University (Abilene, Texas 79601)  
Dr. Thomas Lee

Anderson University (Anderson, Indiana 46012)  
Dr. D. Blake Janutolo

Asbury College (Wilmore, Kentucky 40390)  
Dr. Frank Wilbur

Azusa Pacific University (Azusa, California 91702)  
Dr. Scott Kinnes

Bethel College (Mishawaka, Indiana 46545)  
Dr. Chris Wozencraft/Dr. Katie Weakland

Bethel University (St. Paul, Minnesota 55112)  
Dr. Jeffrey Port

Biola University (La Mirada, California 90639)  
Dr. Rafe Payne

Calvin College (Grand Rapids, Michigan 49546)  
Dr. David Warners

Cedarville University (Cedarville, Ohio 45314)  
Dr. John Silvius

College of the Ozarks (Point Lookout, Missouri 65726)  
Dr. Steve Miller

Cornerstone University (Grand Rapids, Michigan 49505)  
Prof. Ray Gates/Dr. Rob Keys

Council for Christian Colleges & Universities (Wash., D.C. 20002) Dr. Jerry Herbert

Covenant College (Lookout Mountain, Georgia 30750)  
Dr. Jerry Wenger

Dordt College (Sioux Center, Iowa 51250)  
Dr. Delmar Vander Zee

East Texas Baptist University (Marshall, Texas 75670)  
Dr. Roy Darville

Eastern Mennonite University (Harrisonburg, Virginia 22802)  
Dr. A. Clair Mellinger

Eastern University (St. Davids, Pennsylvania 19087)  
Dr. David Unander

Geneva College (Beaver Falls, Pennsylvania 15010)  
Ms. Marjory Tobias

Gordon College (Wenham, Massachusetts 01984)  
Dr. Dorothy Boorse

Goshen College (Goshen, Indiana 46526)  
Dr. Lisa Renee Duke

Grace College (Winona Lake, Indiana 46590)  
Dr. Donald De Young/Mr. Luke Hunt

Greenville College (Greenville, Illinois 62246)  
Dr. Bill Ahern

Hardin-Simmons University (Abilene, Texas 79698)  
Dr. Herbert Grover

Houghton College (Houghton, New York 14744)  
Dr. James Wolfe

Huntington College (Huntington, Indiana 46750)  
Dr. Beth Burch

Indiana Wesleyan University (Marion, Indiana 46953)  
Dr. Mike Goff

John Brown University (Siloam Springs, Arkansas 72761)  
Dr. Larry Seward

Judson College (Elgin, Illinois 60123)  
Dr. Brenda Braaten

King College (Bristol, Tennessee 37620)  
Dr. Charles Owens

Lee University (Cleveland, Tennessee 37311)  
Dr. Michael Freake

Malone College (Canton, Ohio 44709)  
Dr. Christopher Carmichael

Messiah College (Grantham, Pennsylvania 17027)  
Dr. Joseph Sheldon/Dr. David Foster

MidAmerica Nazarene University (Olathe, Kansas 66062)  
Dr. Steve Cole

Montreat College (Montreat, North Carolina 28757)  
Dr. Mark Lassiter

North Park University (Chicago, Illinois 60625)  
Dr. Linda Vick

Northwest University (Kirkland, Washington 98033)  
Dr. Eric Steinkamp/Dr. William Randolph

Northwest Nazarene University (Nampa, Idaho 83686)  
Dr. John Cossel, Jr.

Northwestern College (Orange City, Iowa 51041)  
Dr. Laurie Furlong/Dr. Todd Tracy

Northwestern College (St. Paul, Minnesota 55113)  
Dr. Jerry Beilby

Olivet Nazarene University (Kankakee, Illinois 60901)  
Dr. Randal Johnson

Oral Roberts University (Tulsa, Oklahoma 74171)  
Dr. Hal Reed

Palm Beach Atlantic Univ. (W. Palm Beach, Fla. 33401)  
Dr. Peggy Van Arman

Point Loma Nazarene University (San Diego, Calif. 92106)  
Dr. Michael Mooring

Redeemer University College (Ancaster, Ontario L9K 1J4)  
Dr. Henry Brouwer

Southern Nazarene University (Bethany, Oklahoma 73008)  
Dr. Dennis Siegfried

Spring Arbor College (Spring Arbor, Michigan 49283)  
Dr. Chris Newhouse

Tabor College (Hillsboro, Kansas 67063)  
Dr. Max Terman

Taylor University (Upland, Indiana 46989)  
Dr. Timothy Burkholder

Taylor University-Ft. Wayne (Ft. Wayne, Indiana 46807)  
Dr. John Schutt

The King's University College (Edmonton, Alberta T6B 2H3)  
Dr. John Wood

The Master's College (Santa Clarita, California 91322)  
Dr. Dennis Englin

Trevecca Nazarene University (Nashville, Tennessee 37210)  
Dr. Chris Farrell/Dr. Amy Wilstermann

Trinity Christian College (Palos Heights, Illinois 60463)  
Dr. Louis Sytsma

Trinity International University (Deerfield, Illinois 60015)  
Prof. Angelo Rentas

Trinity Western University (Langley, B.C. V2Y 1Y1)  
Prof. Karen Steensma/Dr. Jack Van Dyke

Union University (Jackson, Tennessee 38305)  
Dr. James Huggins

# COLLEGES

Vanguard University (Costa Mesa, California 92626)  
Dr. Randy Dovel  
Waynesburg College (Waynesburg, Pennsylvania 15370)  
Dr. Janet Paladino  
Westmont College (Santa Barbara, California 93108)  
Dr. Jeffrey Schloss  
Wheaton College (Wheaton, Illinois 60187)  
Dr. Fred Van Dyke  
Whitworth College (Spokane, Washington 99251)  
Dr. Craig Tsuchida

## ELIGIBLE COLLEGES

An eligible college or university is an institution that is a member of the Council of Christian Colleges and Universities, and therefore is eligible to become a Participating College with Au Sable Institute. Students from these colleges are welcome to apply to the Institute.

Belhaven College (Jackson, Mississippi 39202)  
Bluffton College (Bluffton, Ohio 45817)  
Bryan College (Dayton, Tennessee 37321)  
California Baptist University (Riverside, California 92504)  
Campbellsville University (Campbellsville, Kentucky 42718)

Carson-Newman College (Jefferson City, Tennessee 37760)  
Colorado Christian University (Lakewood, Colorado 80226)  
Crichton College (Memphis, Tennessee 38115)  
Crown College (St. Bonifacius, Minnesota 55375)  
Dallas Baptist University (Dallas, Texas 75211)

Eastern Nazarene College (Quincy, Massachusetts 02170)  
Erskine College (Due West, South Carolina 29639)  
Evangel University (Springfield, Missouri 65802)  
Fresno Pacific University (Fresno, California 93702)  
George Fox University (Newberg, Oregon 97132)  
Grand Canyon University (Phoenix, Arizona 85017)

Hope International University (Fullerton, California 92831)  
Houston Baptist University (Houston, Texas 77074)  
Howard Payne University (Brownwood, Texas 76801)  
Judson College (Marion, Alabama 36756)  
Kentucky Christian University (Grayson, Kentucky 41143)

LeTourneau University (Longview, Texas 75607)  
Lipscomb University (Nashville, Tennessee 37204)  
Louisiana College (Pineville, Louisiana 71360)  
Milligan College (Milligan College, Tennessee 37682)  
Mississippi College (Clinton, Mississippi 39058)  
Mt. Vernon Nazarene University (Mt. Vernon, Ohio 43050)

North Greenville College (Tigerville, South Carolina 29688)  
Northwest Christian College (Eugene, Oregon 97401)  
Nyack College (Nyack, New York 10960)  
Oklahoma Baptist University (Shawnee, Oklahoma 74801)  
Oklahoma Christian University (Edmond, Oklahoma 73013)  
Oklahoma Wesleyan University (Bartlesville, Okla. 74006)  
Roberts Wesleyan College (Rochester, New York 14624)

Seattle Pacific University (Seattle, Washington 98119)  
Simpson University (Redding, California 96003)  
Southeastern College (Lakeland, Florida 33801)  
Southern Wesleyan University (Central, S. Carolina 29630)  
Southwest Baptist University (Bolivar, Missouri 65613)  
Sterling College (Sterling, Kansas 67579)

University of Sioux Falls (Sioux Falls, South Dakota 57105)  
Warner Pacific College (Portland, Oregon 97215)  
Warner Southern College (Lake Wales, Florida 33853)  
Wayland Baptist University (Plainview, Texas 79072)  
Western Baptist College (Salem, Oregon 97301)  
Williams Baptist College (Walnut Ridge, Arkansas 72476)

**Enrollment through Theological Seminaries.** Seminaries may at their discretion grant credit for courses taken by their students at Au Sable Institute. Seminarians must make arrangements for credit with their home institution well in advance of the session in which they intend to enroll.

**Enrollment through other Colleges and Universities.** Colleges and universities not listed above may at their discretion grant credit for courses taken by their students at Au Sable Institute. Students in these colleges and universities must make arrangements for credit with their home institution well in advance of the session in which they intend to enroll. These students may also enroll through any of the Participating Colleges listed above.

### FURTHER INFORMATION

**Newsletter.** The Institute produces a newsletter, Au Sable Notes, for all who wish to keep informed about Institute programs, staff, students, alumni, and Christian environmental stewardship. You may place your name on its mailing list by contacting the Administration Office or emailing [newsletter@ausable.org](mailto:newsletter@ausable.org).

**CD-ROM Presentation.** For computer-assisted group presentations or media centers, the Institute provides a PowerPoint presentation on CD-ROM. This will be sent to you in response to a request to the Administration Office.

**Poster.** The Institute provides a poster for display of programs conducted in partnership with Participating Colleges. Contact the Institute Administrative Office for this and other publicity material.

**Au Sable on the Web.** [www.ausable.org](http://www.ausable.org)

### AU SABLE OFFICES

#### Administration

Au Sable Institute  
3770 Lake Drive SE, Grand Rapids, MI 49546  
Phone: (616) 526-9952; Fax: (616) 526-9955  
e-mail: [administration@ausable.org](mailto:administration@ausable.org)

\*Contact for general information about the Institute, Christian environmental stewardship, newsletters, website information, supporting the Institute, etc.

#### Admissions Office / Registrar / Campus

Au Sable Institute  
7526 Sunset Trail NE, Mancelona, Michigan 49659  
Phone: (231) 587-8686; (800) 315-2836  
Fax: (231) 587-5353; E-mail: [admissions@ausable.org](mailto:admissions@ausable.org)

\*Contact for applications, transcripts, information on academic program or internships, etc.

\*\*Offices may be closed on federal holidays.

### CAMPUS LOCATIONS

#### Au Sable - Great Lakes

Au Sable Institute  
7526 Sunset Trail NE, Mancelona, Michigan 49659  
Phone: (231) 587-8686; Fax: (231) 587-5353

The campus is near Mancelona, Michigan in the northern Lower Peninsula of Michigan.

#### Directions to Great Lakes:

*From the east:* I-75 to the Frederick Exit. Take County Rd. 612 thirteen miles west from Frederick to Sunset Trail. North on Sunset Trail 4 miles to Au Sable. Look for a wooden Au Sable sign on the right hand side of the road.

*From the West:* U.S. 131 north of Kalkaska 6 miles to Twin Lake Road. East on Twin Lake Road 10 miles to Sunset Trail Sunset Trail north .5 mile to Au Sable. Look for a wooden Au Sable sign on the right side of the road.

#### Au Sable - Pacific Rim

Au Sable Institute  
180 Parker Road, Coupeville, Washington 98239  
Phone: (360) 678-5586; Fax: (360) 678-0216

#### Directions to Pacific Rim Campus:

*From the North:* I-5 to Anacortes/Oak Harbor Exit, Highway 20. Follow Highway 20 through Oak Harbor to Coupeville. Continue on Highway 20, 2 miles south of the Coupeville stop light to Parker Rd. Turn left on to Parker Rd. Au Sable is 200 yards on right.

*From the South:* I-5 to S.R. 525/Mulkiteo Speedway. After taking the ferry to Clinton, continue on 525 about 21 miles until it merges with Highway 20. Follow Highway 20 north three miles to Parker Road. Au Sable is 200 yards on right.

*From the Olympic Peninsula:* Take ferry from Port Townsend to Keystone. From ferry turn left. Follow Fort Casey Rd north to Coupeville. Turn right on Highway 20 and follow Highway 20 two miles south to Parker Rd. Turn left onto Parker Rd. Au Sable is 200 yards on right.

Washington State Ferry schedule: [www.wsdot.wa.gov/ferries](http://www.wsdot.wa.gov/ferries)

*During construction of our new campus, student housing is at **Casey Conference Center**, adjacent to Fort Casey State Park, Washington, on Whidbey Island in Puget Sound.*

#### Directions to Casey Conference Center:

*From the north:* I-5 to S.R. 20/Anacortes Exit, across Deception Pass bridge.

*From the south:* I-5 to S.R. 525/Mulkiteo Speedway; Mulkiteo-Clinton Ferry to Whidbey Island.

*From the Olympic Peninsula:* Take Port Townsend Ferry to Keystone on Whidbey Island; turn left. Camp Casey is 1/2 mile from the terminal

#### To Camp Casey Conference Center

*From the west (Port Townsend, WA) to the Camp Casey Conference Center:* Follow ferry signs to the Port Townsend Ferry where you cross to Keystone on Whidbey Island. Washington State Ferry schedule information is on the web at [www.wsdot.wa.gov/ferries](http://www.wsdot.wa.gov/ferries) where you can find route schedules for the Port Townsend/Keystone ferry. Please make sure to check schedule information as the ferry runs limited hours. Once on Whidbey Island at the ferry landing, make an immediate left onto Keystone Road (WA-20 West). Fort Casey and the Camp Casey Conference Center will be less than a mile later on your left. Turn left at the main office (yellow building) and follow the signs to the BOQ (Bachelor Officer's Quarters) building.

### 2007 INSTITUTE CALENDAR

#### JANUARY SESSION 2007

December 29, 2006 - January 17, 2007

#### JANUARY SESSION 2007 - INDIA

December 27, 2006 - January 17, 2007

#### WINTER ENVIRONMENTAL EDUCATION INTERNSHIP

January 29 - March 2, 2007

#### SPRING ENVIRONMENTAL EDUCATION INTERNSHIP

April 2 - June 1, 2007

#### MAY SESSION

May 16 - June 5, 2007

#### SUMMER SESSION I

June 7- July 11, 2007

#### ACADEMIC ADVISORY COUNCIL

July 13 - 14, 2007 at Au Sable - Pacific Rim

#### SUMMER SESSION II

July 16 - August 17, 2007

#### AUTUMN ENVIRONMENTAL EDUCATION INTERNSHIP

September 10 - November 9, 2007

### TENTATIVE 2008 INSTITUTE CALENDAR

#### JANUARY SESSION 2008

December 31, 2007 (Monday) - January 18, 2008  
(Friday)

#### AU SABLE - GREAT LAKES

Environmental Ethics  
Winter Biology  
Winter Stream Ecology

#### AU SABLE - INDIA

December 26, 2007 (Wed) - January 16, 2008 (Wed)  
Ecology of the Indian Tropics

#### MAY SESSION 2008

May 14, 2008 (Wednesday) - June 3, 2008 (Tuesday)

#### AU SABLE - GREAT LAKES

Natural History in Spring  
Ornithology: Eastern Birds  
Woody Plants

#### AU SABLE - PACIFIC RIM

Ornithology: Western Birds  
Marine Invertebrates

#### AU SABLE - SOUTH FLORIDA

Tropical Agriculture and Missions

#### SUMMER SESSION I 2008

June 5, 2008 (Thursday) - July 9, 2008 (Wednesday)

#### AU SABLE - GREAT LAKES

Animal Ecology  
Aquatic Biology  
Conservation Biology  
Field Botany  
Land Resources  
Research Methods I  
Watershed Stewardship

#### AU SABLE - PACIFIC RIM

Bioethics  
Field Biology  
Field Botany  
Marine Biology  
Public Health or Biosphere Science  
Restoration Ecology Applications

#### ACADEMIC ADVISORY COUNCIL

July 11-12, 2008 at Au Sable - Great Lakes

#### SUMMER SESSION II 2008

July 14, 2008 (Monday) - August 15, 2008 (Friday)

#### AU SABLE - GREAT LAKES

Environmental Chemistry  
Limnology (Water Resources)  
Principles of Environmental Education  
Restoration Ecology  
Research Methods II  
Molecular Field Biology  
Wildlife Ecology

#### AU SABLE - PACIFIC RIM

Alpine Ecology  
Ecological Agriculture  
Field Geology

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# Au Sable Institute

## of Environmental Studies

### COURSE OFFERINGS - 2007

	JANUARY SESSION	MAY SESSION	SUMMER SESSION I	SUMMER SESSION II
GREAT LAKES	Environmental Ethics Winter Stream Ecology Winter Biology	Field Natural History Ornithology: Eastern Birds Woody Plants	Animal Ecology Aquatic Biology Conservation Biology Field Botany Land Resources Research Methods I Watershed Stewardship	Environmental Chemistry Insect Biology Limnology Research Methods II Restoration Ecology Summer Flora Wildlife Ecology
PACIFIC RIM		Marine Biology Ornithology: Western Birds	Bioethics Environmental Medicine Field Biology Field Botany Marine Invertebrates Restoration Ecology Applications	Alpine Ecology Ecological Agriculture Forest Ecology Field Geology Global Development & Ecological Sustainability Marine Mammals
SOUTH FLORIDA		Tropical Agriculture & Missions		
INDIA	Ecology of the Indian Tropics			