### Trial Course or New Course Proposal

**SUBMITTED BY:**

<table>
<thead>
<tr>
<th>Department</th>
<th>CRCD Department of Science</th>
</tr>
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<tbody>
<tr>
<td>Prepared by</td>
<td>Tom Marsik</td>
</tr>
<tr>
<td>Email Contact</td>
<td><a href="mailto:tmarsik@alaska.edu">tmarsik@alaska.edu</a></td>
</tr>
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</table>

**College/School**

| CRCD                        |

**Phone**

| 842-5109                    |

**Faculty Contact**

| same                        |

See [http://www.uaf.edu/uafgov/faculty/cd/cdman.html](http://www.uaf.edu/uafgov/faculty/cd/cdman.html) for a complete description of the rules governing curriculum & course changes.

1. **ACTION DESIRED (check one):**

   - [ ] Trial Course
   - [x] New Course

2. **COURSE IDENTIFICATION:**

<table>
<thead>
<tr>
<th>Dept</th>
<th>ENVI</th>
<th>Course #</th>
<th>No. of Credits</th>
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<td></td>
<td>120</td>
<td>1</td>
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3. **PROPOSED COURSE TITLE:**

   Home Energy Basics

4. **CROSS LISTED?**

   - [ ] YES
   - [x] NO

   If yes, Dept: [ ]

5. **STACKED?**

   - [ ] YES
   - [x] NO

   If yes, Dept: [ ]

6. **FREQUENCY OF OFFERING:**

   Fall Semester annually

   (Every or Alternate) Fall, Spring, Summer — or As Demand Warrants

7. **SEMESTER & YEAR OF FIRST OFFERING (if approved):**

   Fall 2011

8. **COURSE FORMAT:**

   **NOTE:** Course hours may not be compressed into fewer than three days per credit. Any course compressed into fewer than six weeks must be approved by the college or school’s curriculum council. Furthermore, any core course compressed to less than six weeks must be approved by the core review committee.

<table>
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<tr>
<th>COURSE FORMAT (check one)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6 weeks to full semester</th>
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   **OTHER FORMAT (specify):**

   3 days

   **Mode of delivery (specify lecture, field trips, labs, etc):**

   lectures

9. **CONTACT HOURS PER WEEK:**

   14 LECTURE hours/weeks

   0 LAB hours/week

   0 PRACTICUM hours/week

   **Note:** # of credits are based on contact hours. 800 minutes of lecture=1 credit. 2400 minutes of lab in a science course=1 credit. 1600 minutes in non-science lab=1 credit. 2400-4800 minutes of practicum=1 credit. 2400-8000 minutes of internship=1 credit. This must match with the syllabus. See [http://www.uaf.edu/uafgov/faculty/cd/credits.html](http://www.uaf.edu/uafgov/faculty/cd/credits.html) for more information on number of credits.

   **OTHER HOURS (specify type):**

   14 hours of lectures total

10. **COMPLETE CATALOG DESCRIPTION including dept., number, title and credits (50 words or less, if possible):**

    **ENVI 120 – Home Energy Basics (1 cr) - Basics of space heating and electricity use and production for Alaskan homes. Main topics include fundamentals of physics related to home energy, lighting and appliances, energy bills, building science, retrofits, home renewable energy systems. Course emphasizes how to decrease fossil fuel**
consumption of homes.

### 11. Course Classifications

(undergraduate courses only. Use approved criteria found on Page 10 & 17 of the manual. If justification is needed, attach on separate sheet.)

<table>
<thead>
<tr>
<th>H = Humanities</th>
<th>N = Natural Science</th>
<th>S = Social Sciences</th>
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Will this course be used to fulfill a requirement for the baccalaureate core? [ ] YES [X] NO

If YES, check which core requirements it could be used to fulfill:

- O = Oral Intensive, Format 6
- W = Writing Intensive, Format 7
- Natural Science, Format 8

### 12. Course Repeatability

Is this course repeatable for credit? [ ] YES [X] NO

Justification: Indicate why the course can be repeated (for example, the course follows a different theme each time).

How many times may the course be repeated for credit? [ ] TIMES

If the course can be repeated with variable credit, what is the maximum number of credit hours that may be earned for this course? [ ] CREDITS

### 13. Grading System

<table>
<thead>
<tr>
<th>LETTER</th>
<th>PASS/FAIL</th>
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<tr>
<td></td>
<td>[X]</td>
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### Restrictions on Enrollment (if any)

### 14. Prerequisites

These will be required before the student is allowed to enroll in the course.

**Recommended**

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<th>none</th>
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Classes, etc. that student is strongly encouraged to complete prior to this course.

### 15. Special Restrictions, Conditions

### 16. Proposed Course Fees

| $0 |

Has a memo been submitted through your dean to the Provost & VCAS for fee approval? [ ] Yes [X] No

### 17. Previous History

Has the course been offered as special topics or trial course previously? [ ] Yes [X] No

If yes, give semester, year, course #, etc.: Fall 2009 - ENVI 193 - Home Energy Basics; taught twice - once in Togiak and once in Dillingham

### 18. Estimated Impact

**What impact, if any, will this have on budget, facilities/space, faculty, etc.**

This is a one-credit course with no lab, thus it should have minimal influence on budget, facility, and space resources. Faculty has been hired to teach this course. This course is intended to be offered anywhere across Alaska as a face-to-face course. Courses taught in rural Alaska may require travel money, if no qualified instructor is present in that location. This money has been secured through a Title III grant from Department of Education for the Bristol Bay region for foreseeable future.

Office and classroom space will be provided by existing University urban and rural campuses throughout Alaska. In villages without a University facility, training space can be found in the local schools, native associations, and businesses. No new facilities or space will be required.

This course will broaden courses and topics in the ENVI and RR programs. This program enhancement should attract more students and help prepare students for higher degree studies or entry-level employment in the environmental studies and renewable resources fields.

This course will also broaden the spectrum of UAF courses in the area of sustainable energy, which is a field of quickly growing importance, and can serve as one of the courses for a potential Occupational Endorsement in Sustainable Energy. Sustainable energy is a high demand field across Alaska with a lot of potential for growth.
19. LIBRARY COLLECTIONS
Have you contacted the library collection development officer (ffklj@uaf.edu, 474-6695) with regard to the adequacy of library/media collections, equipment, and services available for the proposed course? If so, give date of contact and resolution. If not, explain why not.

<table>
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<tr>
<th></th>
<th>Yes</th>
<th>No</th>
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</table>
|   |     | September 16, 2010 - No resource impact.

20. IMPACTS ON PROGRAMS/DEPTS
What programs/departments will be affected by this proposed action?

ENVI and RR:
This course will have a positive impact on the ENVI and RR programs as it will broaden the courses and topics offered. This should attract more students into these programs. The impact was many times discussed in person and via email with Dr. Todd Radenbaugh, the academic director of these programs, who is very supportive of this new course offering.

Electrical Engineering (EE):
The topics of sustainable energy are also discussed in the Power and Control branch of the Electrical Engineering B.S. program. The impact of this new course was discussed via phone and email with Dr. Richard Wies, who is the head of the Power and Control branch, and he supports this new course. Getting rural students excited about energy and engineering at a lower-level increases their interest to pursue a B.S., or even M.S., at the College of Engineering and Mines at UAF.

21. POSITIVE AND NEGATIVE IMPACTS
Please specify positive and negative impacts on other courses, programs and departments resulting from the proposed action.

Besides the impacts stated above (Section 20.), this course will also benefit non-degree students interested in home energy.

No significant negative impacts are anticipated.

JUSTIFICATION FOR ACTION REQUESTED
The purpose of the department and campus-wide curriculum committees is to scrutinize course change and new course applications to make sure that the quality of UAF education is not lowered as a result of the proposed change. Please address this in your response. This section needs to be self-explanatory. Use as much space as needed to fully justify the proposed course.

Residents of rural Alaska are facing challenges with respect to the cost of home energy as well as environmental and social sustainability of current practices. They are seeking education to both deal with their personal issues related to energy and follow careers in the energy and environmental fields. This course will help satisfy that demand.

This course will serve as a course in the ENVI Certificate program and RR A.A.S. degree program, which will broaden and enhance the topics covered by these and other programs, which in turn will attract more students.

UAF Bristol Bay Campus has the experience in environmental science with focus on sustainable energy, as demonstrated by the newly established Sustainable Energy Initiative, headed by Dr. Tom Marsik.
### APPROVALS

<table>
<thead>
<tr>
<th>Signature, Chair, Program/Department of:</th>
<th>Date</th>
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<tbody>
<tr>
<td>Signature, Division Chair CRCD of:</td>
<td>Date</td>
</tr>
<tr>
<td>Signature, Chair, College/School Curriculum Council for:</td>
<td>Date</td>
</tr>
<tr>
<td>Signature, Dean, College/School of:</td>
<td>Date</td>
</tr>
<tr>
<td>Signature of Provost (if applicable)</td>
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Offerings above the level of approved programs must be approved in advance by the Provost.

### ALL SIGNATURES MUST BE OBTAINED PRIOR TO SUBMISSION TO THE GOVERNANCE OFFICE

| Signature, Chair, UAF Faculty Senate Curriculum Review Committee | Date |

### ADDITIONAL SIGNATURES (If required)

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<thead>
<tr>
<th>Signature, Chair, Program/Department of:</th>
<th>Date</th>
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<tr>
<td>Signature, Chair, College/School Curriculum Council for:</td>
<td>Date</td>
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<tr>
<td>Signature, Dean, College/School of:</td>
<td>Date</td>
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</table>
ATTACH COMPLETE SYLLABUS (as part of this application).

Note: syllabus must follow the guidelines discussed in the Faculty Senate Guide [http://www.uaf.edu/uafgov/faculty/cd/syllabus.html](http://www.uaf.edu/uafgov/faculty/cd/syllabus.html). The department and campus wide curriculum committees will review the syllabus to ensure that each of the items listed below are included. If items are missing or unclear, the proposed course change will be denied.

**SYLLABUS CHECKLIST FOR ALL UAF COURSES**

During the first week of class, instructors will distribute a course syllabus. Although modifications may be made throughout the semester, this document will contain the following information (as applicable to the discipline):

1. **Course information:**
   - Title, number, credits, prerequisites, location, meeting time (make sure that contact hours are in line with credits).

2. **Instructor (and if applicable, Teaching Assistant) information:**
   - Name, office location, office hours, telephone, email address.

3. **Course readings/materials:**
   - Course textbook title, author, edition/publisher.
   - Supplementary readings (indicate whether required or recommended) and any supplies required.

4. **Course description:**
   - Content of the course and how it fits into the broader curriculum;
   - Expected proficiencies required to undertake the course, if applicable.
   - Inclusion of catalog description is strongly recommended, and Description in syllabus must be consistent with catalog course description.

5. **Course Goals (general) and Student Learning Outcomes (more specific)**

6. **Instructional methods:**
   - Describe the teaching techniques (e.g. lecture, case study, small group discussion, private instruction, studio instruction, values clarification, games, journal writing, use of Blackboard, audio/video conferencing, etc.).

7. **Course calendar:**
   - A schedule of class topics and assignments must be included. Be specific so that it is clear that the instructor has thought this through and will not be making it up on the fly (e.g. it is not adequate to say “lab”. Instead, give each lab a title that describes its content). You may call the outline Tentative or Work in Progress to allow for modifications during the semester.

8. **Course policies:**
   - Specify course rules, including your policies on attendance, tardiness, class participation, make-up exams, and plagiarism/academic integrity.

9. **Evaluation:**
   - Specify how students will be evaluated, what factors will be included, their relative value, and how they will be tabulated into grades (on a curve, absolute scores, etc.)

10. **Support Services:**
    - Describe the student support services such as tutoring (local and/or regional) appropriate for the course.

11. **Disabilities Services:**
    - The Office of Disability Services implements the Americans with Disabilities Act (ADA), and insures that UAF students have equal access to the campus and course materials.
    - State that you will work with the Office of Disabilities Services (203 WHIT, 474-7043) to provide reasonable accommodation to students with disabilities.”
Course Description:
Basics of space heating and electricity use and production for Alaskan homes. Main topics include fundamentals of physics related to home energy, lighting and appliances, energy bills, building science, retrofits, home renewable energy systems. Course emphasizes how to decrease fossil fuel consumption of homes.

Course Goals:
The general goals of this course are to provide education that will help students understand energy flows in a home and make educated decisions regarding home energy use and production.

Student Learning Outcomes:
Upon successful completion of this course, the student will be able to:

- Recognize basic science concepts as related to home energy flows.
- Identify types of basic home energy monitoring tools and demonstrate their use.
- Discuss home energy improvement options with respect to both space heating and electricity.
- Describe the procedure of setting up a renewable energy system for a home.
- Actively participate in setting up a residential-scale solar/wind hybrid system

Instructional Methods:
- Lectures
- Project
- Discussions
- Homework
- Readings
- Handouts

Course Calendar:

**Friday**
6:00pm-7:00pm  Course introduction
7:00pm-8:00pm  Energy flows in a typical home and ways to affect the flows
Reading assignment: Read through the whole first booklet - Energy Savers Tips for Rural Alaska

**Saturday**
9:00am-10:45am  Basic physics related to energy – electricity and heat
10:45am-11:00am  Break
11:00am-12:00pm  Energy monitoring tools
12:00pm-1:00pm  Understanding energy bills
1:00pm-2:00pm  Lunch break
Reading assignment: Read through the whole second booklet - Energy Savers: Tips on Saving Energy & Money at Home

Sunday
9:00am-10:45am Home renewable energy – passive and active
10:45am-11:00am Break
11:00am-1:00pm Class project - setting up a solar/wind hybrid system
1:00pm-2:00pm Lunch break
2:00pm-3:00pm Review
3:00pm-4:00pm Final exam

Course Policies:
1. UAF requires students to conduct themselves honestly and responsibly, and to respect the rights of others.
2. Attendance is mandatory.
3. Late assignments will not be accepted without prior approval of instructor.
4. The instructor reserves the right to amend this course outline as needed.

Evaluation:
Final grades are calculated from the points earned in the following areas:

Attendance and Participation ........................................................................................................................................10%
Students are expected to attend the entire 3-day classroom session and actively participate in group discussions.

Class Project ..................................................................................................................................................30%
In the class project, students will actively participate in setting up a residential-scale solar/wind hybrid system.

Homework ..................................................................................................................................................30%
Each student will use an energy monitoring tool (typically a Kill-A-Watt meter) provided by the instructor to measure overnight the electrical consumption of an appliance of the student’s choice (e.g. a refrigerator in his/her home), and based on the collected data make projections about the annual electricity consumption and associated cost.

Final Exam ..................................................................................................................................................30%
An open book final exam will cover material from the whole course.

Grading Policy:
This course will be graded pass/fail. In order to receive a passing grade, students must receive a 70% or higher grade.

Support and Disability Services:
University of Alaska Fairbanks
Bristol Bay Campus – Student Services
PO Box 1070
Dillingham, Alaska 99576
907-842-5109
800-478-5109
Fax: 907-842-5692

Students can also go to the UAF website http://www.uaf.edu or to the College of Rural and Community Development website http://www.uaf.edu/rural/ or to Bristol Bay Campus website http://www.uaf.edu/bbc/index.html.

UAF Disability Services for Distance Students
UAF has a Disability Services office that operates in conjunction with the College of Rural and Community Development (CRCD) campuses and UAF’s Center for Distance Education (CDE). Disability Services, a part of UAF’s Center for Health and Counseling, provides academic accommodations to enrolled students who are identified as being eligible for these services. If you believe you are eligible, please visit http://www.uaf.edu/chc/disability.html on the web or contact a student affairs staff person at your nearest local campus. You can also contact Disability Services on the Fairbanks Campus at (907) 474-7043, fydso@uaf.edu