Course Syllabus – FALL 2018

GLOBAL to LOCAL SUSTAINABILITY
BIOL 647 (74877) and NRM 647 (74058)

Course Information Location: AHRB 183 Meeting Time: Tu/Th, 2:00-3:30

Instructor: Sarah Trainor, 370 O’Neill Building; sarah.trainor@alaska.edu, office: 907.474.7878. Office Hours by appointment

Course Description
This course explores key elements of sustainability science in order to give students a strong foundation for graduate studies and for applying their graduate research to solving important real-world problems. Central topics to be covered include: knowledge co-production; translational ecology; linking science and decision-making; the importance and challenge of cross-scale interactions and feedbacks, multiple stressors, adaptation, indicators of sustainability and evaluating sustainability outcomes. A key theme of the course will be research on Sustainability in Alaska and the Arctic, including adaptation to climate change. The course format will include lectures and guest-lectures, but will focus on student lead discussions of required course readings. The course is designed to address sustainability from a range of trans- and inter-disciplinary perspectives. Students from a range of departments are welcome.

Student Learning Outcomes:
Students who are successful in this class will learn:

- How to read, review, and lead a discussion on peer-reviewed published literature

By the end of this class, students will:
- Be able to synthesize interdisciplinary peer-reviewed literature related to sustainability.
- Be able to critically discuss the interdisciplinary complexities of sustainability in the Arctic.
- Be able to critically discuss linkages between science and decision-making from the perspective of sustainability.
- Understand the importance and complexities of knowledge co-production

Assignments/Grades/Requirements
***You are expected to complete all of the assigned readings in advance of the class for which they are assigned and to come to every class prepared to discuss these readings.***

The following grading scale will apply:
A - 90 to 100 (A- 90-91; A+ 99-100)
B - 80 to 89 (B- 80-81; B+ 88-89)
C - 70 to 79 (C- 70-71; C+ 78-79)
D - 60 to 69 (D- 60-61; D+ 68-69)
F - < 60
You will be graded on a combination of:

- 10% - Contributions to ALL class discussions
- 15% - Leading of select class discussions
- 10% - Homework and one page reading summary/reflection papers as assigned
- 10% - Abstract and annotated outline for final paper
- 15% - Presentation of Final Paper
- 40% - Final Paper

Assignments handed in after the due dates will receive reduced credit. You are expected to abide by the student code of conduct (see below) for all assignments.

**Contributions to Class Discussion (10%)**
You are expected to come to class prepared to discuss the readings and topic as outlined in the course schedule. This is true also for class sessions in which you are not a designated presenter. You are expected to contribute constructively to these discussions and to the collective decision-making process and to be respectful of the instructor and class-mates in contributing to all class discussions in thoughtful and meaningful ways. When guest lectures are scheduled, you are expected to complete assigned readings and come prepared with 2-3 questions for discussion with the speaker.

**Leading Select Class Discussions (15%)**
Students will be responsible for organizing, presenting material, and assist in leading discussion about readings. This involves presenting the main points and key concepts of the readings, presenting your thoughtful response, and facilitating a discussion. Do you agree with the author’s main points? If so, why? If not, why not? In what ways are the ideas and concepts presented novel, or interesting? How do they connect with other material in the course (both readings and interview results)? Are there any key points or elements for consideration that are missing in the readings?

**One Page Reading Summaries/Reflection Papers (10%)**
In this assignment you should demonstrate that you have read the assigned readings and present your analysis of the reading through the lens of critical thinking. Think of these papers as a first draft of a literature review for the Final Paper.

**Abstract and Annotated Outline for Final Paper (10%)**
This assignment is designed to help you get a jump start on writing your final paper. Details TBD.

**Final Paper Presentation (15%)**
Each student will present their final paper. Details TBD.

**Final Paper (40%)**
Details TBD based on class composition and interests.

**Adaptation**
The course schedule may be adjusted to meet student enrollment, student interests, and the scheduling needs of guest lectures. Revisions to the schedule will be posted on Blackboard. You are responsible for following announcements on Blackboard to receive these revisions.
Instructional Methods

The course will use a combination of lectures, student lead discussions, and guest speakers. This class is interactive, relying on strong student contribution. Students are expected to contribute to a respectful and productive atmosphere that encourages this joint class exploration of course themes.

Attendance

Students are expected to attend all classes. If it is necessary to miss a class, contact the instructors beforehand to inform them of your plans and request guidance on how to make up missed classroom learning. We encourage students to join the class remotely if on travel. Remote access is available via Zoom and telephone. Details pasted below. Missed classes will be reflected in your participation grade.

Student Code of Conduct

According to the UAF code of conduct “Students will not collaborate on any quizzes, in-class exams, or take-home exams that will contribute to their grade in a course, unless the instructor of the course grants permission. Students will not represent the work of others as their own. A student will attribute the source of information not original with himself or herself (direct quotes or paraphrases) in compositions, theses, and other reports. No work submitted for one course may be submitted for credit in another course without the explicit approval of both instructors.” Students are expected to abide by the UAF code of conduct.

An explanation of plagiarism and how to properly cite sources are available at the following two sites:
http://library.uaf.edu/ls101-plagiarism
http://library.uaf.edu/ls101-citing
Plagiarism is grounds for course failure.

UAF Policies Disabilities Services

The University of Alaska Fairbanks is committed to providing equal access for students with disabilities. 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. We will work with the Office of Disabilities Services (203 WHIT, 474-5655) to provide reasonable accommodation to students with disabilities. If you have a physical or learning disability, please advise us in writing of any special consideration necessary by the beginning of the second class. We will do everything possible to accommodate you in accordance with the Americans with Disabilities Act. Priority seating close to the board and screen is provided for students who need to be in close proximity to the board.

Blackboard & Distance Delivery

We will use the UAF Blackboard site for this course to send emails and post readings, assignments and other materials. Blackboard can be accessed at https://classes.alaska.edu/. Email notification through Blackboard will not work for a non-UAF email address. If you principally use a non-UAF email service, (such as yahoo) go to your UAF account and forward your UAF email to that address. You are responsible for all emails sent to your UAF email account. Blackboard resources, links and support information are available at the UAF Blackboard homepage.

Remote Access

Students in the course may be based in Fairbanks and other sites. Students not located in Fairbanks can connect to the class via Zoom from PC, Mac, Linux, iOS or Android. If you require remote access or are away from town without internet access, contact the instructor. For questions with Zoom connections, contact Steve Peterson: (907) 474 – 7053, slpeterson@alaska.edu.
Join from PC, Mac, Linux, iOS or Android: https://zoom.us/j/650583449

Or iPhone one-tap:
US: +16699006833,,650583449#
or +16468769923,,650583449#

Or Telephone:
Dial (for higher quality, dial a number based on your current location):
US: +1 669 900 6833 or +1 646 876 9923 or +1 877 853 5247 (Toll Free) or +1 877 369 0926 (Toll Free)
Meeting ID: 650 583 449
International numbers available: https://zoom.us/u/bltsl6n41

Or an H.323/SIP room system:
H.323:
162.255.37.11 (US West)
162.255.36.11 (US East)
221.122.88.195 (China)
115.114.131.7 (India)
213.19.144.110 (EMEA)
202.177.207.158 (Australia)
209.9.211.110 (Hong Kong)
64.211.144.160 (Brazil)
69.174.57.160 (Canada)
Meeting ID: 650 583 449

SIP: 650583449@zoomcrc.com
Course Schedule – FALL 2018

GLOBAL to LOCAL SUSTAINABILITY

BIOL 647 (74877) and NRM 647 (74058)

Course Information Location: AHRB 183 Meeting Time: Tu/Th, 2:00-3:30

Instructor: Sarah Trainor, 370 O’Neill Building; sarah.trainor@alaska.edu, office: 907.474.7878.

Office Hours by appointment

***You are responsible for reading all of the readings prior to class meeting.***

***Even when you are not leading the discussion.***

**This schedule is subject to change. Updates will be posted on Blackboard.**

**You are responsible for following Blackboard posts and tracking updates.**

See syllabus and Blackboard for more details on grading and course assignments.

Required Texts:


Available on the University of Alaska Press website, including an option to get the book as an electronic loaner one month for $7.00 (http://press.uchicago.edu/ucp/books/book/distributed/N/bo12373683.html). This also allows you to print & save pdf versions of individual chapters. See schedule below for the chapters we will be using in the class.

Additional readings posted on Blackboard.

Recommended Texts:

<table>
<thead>
<tr>
<th>Wk</th>
<th>Day</th>
<th>Date</th>
<th>Topic</th>
<th>Required Reading</th>
<th>Format/ Student Lead</th>
<th>Assignment Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tu</td>
<td>8/28</td>
<td>Course Framework, Goals and Expectations</td>
<td></td>
<td>In-Class ANWR Exercise</td>
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<tr>
<td>1</td>
<td>Th</td>
<td>8/30</td>
<td>What is Sustainability Science? How do we do it?</td>
<td>Clark et al 2007, Kates et al. 2011, Petrov et al 2017, Ch 5</td>
<td>SFT – Lecture/Discussion</td>
<td>Come prepared for student lead discussion choices</td>
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<tr>
<td>2</td>
<td>Tu</td>
<td>9/04</td>
<td>Challenges of Sustainability in the Arctic - Socio-Ecologic Systems, Climate Change, Adaptation, Etc.</td>
<td>North by 2020 Section 1 – pgs 1-52</td>
<td>SFT – Lecture/Discussion</td>
<td></td>
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<tr>
<td>2</td>
<td>Th</td>
<td>9/06</td>
<td>Arctic Sustainability Research Discussion of Workshop With Chinese Academy of Sciences</td>
<td>Petrov et al. 2017. Chs 1-3, &amp; 5 (pp. 1-30)</td>
<td>STUDENT LEAD 1.(Chs 1-2) 2.(Ch 3)</td>
<td>Pick one paper cited in Petrov et al 2017 Ch. 3. Locate and post pdf (may need to ILL)</td>
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<tr>
<td>3</td>
<td>Tu</td>
<td>9/11</td>
<td>Conceptual Framework for Social-Ecological Systems and Sustainability</td>
<td>Chapin, Folke and Kofinas, Ch 1, in Principles of Ecosystem Stewardship Petrov et al 2017, Ch. 4.</td>
<td>SFT – Lead Discussion</td>
<td>Come with an example of a social-ecological topic</td>
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<tr>
<td>3</td>
<td>Th</td>
<td>9/13</td>
<td>Arctic Sustainability Research Follow-Up</td>
<td>PDFs chosen from Petrov et al 2017, Ch 3</td>
<td>STUDENT LEAD 1. 2. 3.</td>
<td>Come prepared to lead discussion on paper posted from Petrov et al 2017</td>
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<tr>
<td>4</td>
<td>Tu</td>
<td>9/18</td>
<td>Ecosystem/Sea Ice System Services</td>
<td>Millennium Ecosystem Assessment Summary (Summary for Decision-Makers, Key Questions 1 - 4, 8, 9) Eicken, Lovecraft, Druckenmiller 2009</td>
<td>STUDENT LEAD 1. (ME Summary for Decision-Makers) 2. (ME Key Questions 1-4) 3. (ME Key Questions 8,9) 4. Eicken, Lovecraft, Druckenmiller)</td>
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<tr>
<td>5</td>
<td>Tu</td>
<td>9/25</td>
<td>Prep for Workshop Collaboration with Chinese Academy of Sciences</td>
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<tr>
<td>5</td>
<td>Th</td>
<td>9/27</td>
<td>Sustainability in the Arctic – Collaboration with Chinese Academy of Sciences</td>
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<tr>
<td>6</td>
<td>Tu</td>
<td>10/02</td>
<td>Paradox of Sustainability and Well-Being</td>
<td>Rudasepp, Env. Paradox, 2010</td>
<td>Essay Discussion HW – Paradox Essay</td>
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<tr>
<td>7</td>
<td>Tu</td>
<td>10/09</td>
<td>Multiple Stressors/Exposures</td>
<td>Parlee and Furgal 2012 Bennett et al 2016</td>
<td>STUDENT LEAD 1. 2.</td>
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### Global to Local Sustainability NRM/BIO 647, Fall 2018

<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Topic</th>
<th>Readings</th>
<th>Assignments</th>
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</thead>
<tbody>
<tr>
<td>8</td>
<td>Tu</td>
<td>10/16</td>
<td>What is knowledge co-production? Why is it desirable? How can it be accomplished? Who are relevant stakeholders?</td>
<td>Bremer and Meisch 2017&lt;br&gt;Beier et al 2016&lt;br&gt;Vogel et al 2016</td>
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<tr>
<td>8</td>
<td>Th</td>
<td>10/18</td>
<td>What is translational ecology? How does it relate to knowledge co-production?</td>
<td>Enquist et al 2017&lt;br&gt;Hallett et al 2017&lt;br&gt;Wall et al 2017</td>
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<tr>
<td>9</td>
<td>Tu</td>
<td>10/23</td>
<td>What evidence do we have that knowledge co-production is needed in Alaska and the Arctic? How can this be accomplished?</td>
<td>Arctic Observing Summit Conference Statement 2016&lt;br&gt;Chapin et al 2016&lt;br&gt;Cochran et al 2013&lt;br&gt;Knapp and Trainor 2013</td>
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<tr>
<td>9</td>
<td>Th</td>
<td>10/25</td>
<td>Indigenous Knowledge, Climate Change and Sustainability</td>
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<tr>
<td>10</td>
<td>Tu</td>
<td>10/30</td>
<td>Indigenous Knowledge, Climate Change and Sustainability - #2</td>
<td>North by 2020 Sections: 2.1, 2.2, 2.3, 2.6, 2.8 (pp. 55-78, 111 – 133, 151-162)&lt;br&gt;Optional: 2.4, 2.5</td>
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<tr>
<td>10</td>
<td>Th</td>
<td>11/01</td>
<td>Environmental Justice</td>
<td>Agyeman Ch. 11 – Environmental Justice and Sustainability in Handbook of Sustainable Development.&lt;br&gt;Trainor et al Ch. 8 – Environmental Injustice</td>
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<td>Week</td>
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<td>Topic</td>
<td>Reading Material</td>
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<tr>
<td>11</td>
<td>Th</td>
<td>11/08</td>
<td>Arctic Sustainability Research: Future Research</td>
<td>Petrov et al 2017, Ch 8, Agenda 2025</td>
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<td>12</td>
<td>Tu</td>
<td>11/13</td>
<td>Evaluating Sustainability</td>
<td>TBD</td>
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<td>12</td>
<td>Th</td>
<td>11/15</td>
<td>TBD</td>
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<td>13</td>
<td>Tu</td>
<td>11/20</td>
<td>TBD</td>
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<tr>
<td>13</td>
<td>Th</td>
<td>11/24</td>
<td>Thanksgiving</td>
<td><strong>NO CLASS</strong></td>
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<tr>
<td>14</td>
<td>Tu</td>
<td>11/27</td>
<td>Student Paper Presentations</td>
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<tr>
<td>14</td>
<td>Th</td>
<td>11/29</td>
<td>Student Paper Presentations</td>
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<td>15</td>
<td>Tu</td>
<td>12/04</td>
<td>Student Paper Presentations</td>
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<tr>
<td>15</td>
<td>Th</td>
<td>12/06</td>
<td>Student Paper Presentations</td>
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