Economic and Social Aspects of Conservation Biology
CBIO 8004
Spring 2014, 3 credits
Tuesday and Thursday 8:45 – 10:00
BioScience 12

Steve Polasky
Office: 337E Ruttan Building/503 Ecology
Phone: 612-625-9213/612-624-3663
Email: polasky@umn.edu

Rob Blair
Office: 186 McNeal Hall
Phone: 612-624-2198
Email: BlairRB@umn.edu

Course Description:
This course is the second semester of a yearlong introductory course for graduate students in the Conservation Biology Graduate Program. Other graduate students who are interested in aspects of conservation biology are welcome to enroll. Conservation biology is a mission-oriented science that focuses on how to protect and restore biological diversity. During the first semester we covered much of the scientific basis underlying conservation including genetics, population biology, landscape ecology, as well as systematic conservation planning, ecosystem services, and environmental ethics. During this semester we will apply concepts and methods from ecology, economics, political science and other fields to study scientific and policy issues relevant to the conservation of biological diversity.

Course Goals
The overall goal for the yearlong course is to provide you with an introduction to the current ecological, economic, social and policy underpinnings of conservation biology and the application of these principles to conservation challenges.

By taking this course, you will:
• Develop a comprehension of the fundamental ecological principles underlying conservation biology;
• Develop a comprehension of the fundamental principles underlying economic, political and social systems that affect the conservation of biological diversity;
• Develop an understanding of the interdisciplinary challenges of implementing conservation practices;
• Develop an appreciation for the myriad perspectives among conservation biologists, decision-makers, and the public at large.
• Develop your skills in writing for publication and in communicating issues to the public.

Class Format:
Class material will be presented through a combination of lecture and discussion, including participatory learning activities, and informal writing assignments. There will be two 75-minute class periods per week, with each class period typically structured around 1-3 assigned articles, which everyone is expected to read before class. Electronic copies of readings will be available on the UMN Moodle web site (www.moodle.umn.edu).
Credits and Workload Expectations

In keeping with official UMN policy, this 3-credit class should require a minimum of 9 hours of work per week for the average student. Classroom activities will account for 3 of those hours, so you can expect to spend at least 6 additional hours per week on out-of-classroom activities. Most of this time will be spent reading and reflecting. **Do not take this class unless you are prepared to invest ample time in careful reading and reflection.**

Evaluation:
We will follow the University of Minnesota’s Uniform Grading Policy.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
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<tbody>
<tr>
<td>A</td>
<td>Achievement that is <strong>outstanding</strong> relative to the level necessary to meet course requirements.</td>
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<tr>
<td>B</td>
<td>Achievement that is <strong>significantly above</strong> the level necessary to meet course requirements.</td>
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<tr>
<td>C</td>
<td>Achievement that <strong>meets</strong> the course requirements in every respect.</td>
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<tr>
<td>D</td>
<td>Achievement that is <strong>worthy of credit</strong>, even though it fails to meet fully the course requirements.</td>
</tr>
<tr>
<td>F</td>
<td>Represents failure and signifies that the work was either: 1) completed but at a level <strong>not worthy of credit</strong>, or 2) <strong>not completed</strong> and there was no agreement between the student and instructors that the student would be awarded an Incomplete.</td>
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In addition to the letter grades listed above, we will also award pluses and minuses. Incompletes will only be assigned in the case of extraordinary circumstances arising late in the semester that prevent normal completion of course requirements. If you enroll with S/N grading, you must complete all course requirements and earn a C- or better to receive a grade of S (Satisfactory).

<table>
<thead>
<tr>
<th>Component of Grade</th>
<th>%</th>
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<tbody>
<tr>
<td>Take-home Exam</td>
<td>15</td>
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<tr>
<td>Active participation in class discussion</td>
<td>10</td>
</tr>
<tr>
<td>Daily Questions</td>
<td>10</td>
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<tr>
<td>Problem Set</td>
<td>10</td>
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<tr>
<td>Review Paper Draft</td>
<td>10</td>
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<tr>
<td>Peer Review of Two Classmates Review Paper Drafts</td>
<td>10</td>
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<tr>
<td>Review Paper Final</td>
<td>10</td>
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<tr>
<td>Group Presentation</td>
<td>15</td>
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<tr>
<td>Opinion Piece</td>
<td>10</td>
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<td><strong>Total Points</strong></td>
<td><strong>100</strong></td>
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**Attendance:** Because our course will depend on in-class participation, attendance at all schedule class meetings is expected. Please contact us in advance if you must miss a class session.
Assignments:

Take-home exam
A take-home exam will be handed out in class on April 8th and will be due by 5 pm on April 15th. The exam will cover material from the beginning of the semester up through the section on fisheries and marine conservation. The exam will be open-book and open-note but you are not to talk to others about the exam until after you have turned it in.

Daily questions
This class requires active participation, but you can’t participate unless you come to class fully prepared, having carefully read and considered the assigned readings. For each class session, you will write a “daily question.” The daily question is a short question or comment about the reading material for that class session, i.e., something you didn’t understand, or found significant or noteworthy, or an omission of an important topic that you felt should be covered. The daily question should be posted on Moodle by 6 pm the day before each class. We will try to address daily questions to the extent that it is possible during the class. Questions will be scored 1=poor (your question required very little reflection on the reading); 2=good (it’s evident that you read the paper and put a moderate amount of thought into the question); 3=excellent (it’s clear that you read the paper carefully and came up with an insightful question or comment about the topic).

Problem Set
The first part of the course will cover material on “conservation economics” (the application of economics to conservation issues. The best way to really learn this material is to practice applying it by solving problems. The problem set will be due by 5 pm on February 18.

Draft Review Paper
Objective:
1. The learner will write a review paper suitable for submission to a specific journal.

Select a journal and locate the author guidelines of that journal.
1. Please upload a document including your name, proposed title of your review paper, proposed journal, and proposed category to which you will submit the paper.
2. Submit a second document of the author guidelines for that journal. (You may have to create a pdf of the web page where the guidelines are posted. Some journals provide a downloadable document.)

Submit a draft of your review article.
Along with the review paper, please...

1) Identify the target journal and category.

2) Include a copy of the guidelines for authors for that journal and category.
3) Supply a list of three of your classmates who could serve as potential reviewers.

**Critique of Two Classmate’s Review Papers**

Objective:
1. The learner will write an anonymous peer review critiquing the draft of a review paper written by a classmate.
2. The learner will write a signed peer review critiquing the draft of a review paper written by a different classmate.

Write a formal review of a manuscript. Follow the instructions provided reviewers for the journal *Conservation Biology* (below).

**Conservation Biology**

**Instructions to Reviewers**

Thank you for agreeing to review the attached manuscript for Conservation Biology. We place a high premium on rapid and critical review of papers. Our expectation is that you will complete your review and return your comments to the Assigning Editor within three weeks of receipt. If you cannot do this, please inform the Assigning Editor immediately. We also expect all reviews to be returned to the Assigning Editor electronically, as a Word or Rich Text Format attachment to an email. Returning reviews as hard copies slows down the entire review process. If you would like to make comments directly on the manuscript you may use the “track changes” feature in Word, but note that this could reveal your identity to the authors.*

The following criteria will help you evaluate manuscript suitability for publication and the nature and extent of revisions that may be required.

**Relevance**
Although we publish papers from disciplines as different as economics and ethics, our name accurately reflects our content. Please tell us if the manuscript bears no obvious relationship to the broadly defined field of conservation biology or if you would suggest a more appropriate journal to the author.

**Importance**
We receive far more manuscripts than we could possibly consider, many of which are of good scientific quality. Thus, there is great competition for journal space and our expectations of quality are high. Our research papers should have a significance or application that transcends the particular species, location, or system examined. Consequently, tell us if a paper is too narrow, parochial, or specialized to be of general interest. We also expect that our papers be novel and cutting edge, and not simply another competent study of well-known phenomena.
Organization and Writing
Our readership is as diverse as our subject matter and includes research scientists from many fields, conservation managers, government officials, environmental activists, and others throughout the world. The writing, therefore, should contain as little technical jargon as possible, and specialized terms must be explained. The organization should be clear and tight, and the purpose and scope of the paper should be made plain in the opening paragraphs. Papers should be as concise as possible, with no unnecessary verbiage. Your criticisms will be most useful to the author if they are backed up by positive suggestions for reorganization, deletion of weak or unnecessary material, and addition or amplification of material that is not dealt with adequately.

Tables and Figures
Tables and figures should not merely repeat material contained in the text. In general, the ratio of tables and figures (together) to total manuscript pages should not exceed 1:4. Please indicate for the author which tables and figures could be omitted or added. Concrete suggestions for improving illustrative material will be useful to the author.

Justification and Bias
Are the conclusions objective and justified or do they merely reflect a preconceived bias? Are the literature citations reasonably complete, balanced, and up to date? Is the paper over referenced? (With the exception of comprehensive review papers, it is rarely necessary to include large reference strings to support a given point). Is the author fair to opposing points of view or alternative hypotheses? If not, please make specific recommendations for additions and changes.

Length
Length is a major concern, and papers should not be any longer than absolutely necessary to convey their message. Word limits should generally be adhered to (research papers and Analytical Essays, 7,000 words; Reviews, 7,500 words; Research Notes, 3,000 words; Conservation in Practice, 5,000 words; Comments and Diversity, 2,000 words). We appreciate suggestions for condensing papers that are too long. We have many more good papers than we have space for and always want to cut unnecessary material.

Stylistic Editing
Although much appreciated, detailed stylistic editing by reviewers is not necessary. This includes, for example, checking references against literature cited, and specific spelling changes. These are helpful, but if time is limited we prefer reviewers concentrate on substantive issues such as the quality of the science, statistical methods, hypotheses tested, conclusions reached, and relevance for our readers.
Overall Judgment
General comments that judge the paper overall are very helpful to the Editors. Your review may contain confidential comments to the Editor, but these need to be clearly identified as such. It is here that you should make an overall recommendation regarding the fate of the manuscript; do not make such a recommendation where the authors will see it. If you feel the manuscript is poor and unlikely to be improved substantially by revision, please say so tactfully, but explicitly, in your review. The identity of reviewers is kept confidential; unless you choose to be identified, do not put your name or other identifying information on the review.

*To hide your identity on your tracked changes in Word, go to “Tools,” then “Options,” then select “User Information.” A box will appear showing your name, initials, and address. You may change any information in those boxes to hide your identity. For example, under “Name” you might insert “anonymous” or just leave it blank. This will only apply to subsequent documents that you work on (i.e., do this before you use tracked changes).

Revise Your Review Paper

Objective:
The learner will revise a manuscript based on critiques from peer reviews and prepare it for submission to a specified journal.

Upload your review paper manuscript and cover letter to the editor here on Moodle!

Create an Elevator Speech

Objective:
The learner will craft an elevator speech that requests funding for his or her research.

In class, we will create, practice, and deliver individual elevator speeches describing your research and justifying a request for funding. This assignment will not be graded but will be presented to your peers for oral critique.

Write an Opinion Piece

Objective:
The learner will write an opinion piece concerning their area of research.

Write an op-ed piece on some facet of your research. Pick a target newspaper or website, identify it, write the piece to the expectations of that target. We will discuss this project extensively in class.
**Classroom Conduct**

All students at the University have the right to a civil, productive, and stimulating learning environment. In turn, instructors have a responsibility to nurture and maintain such an environment. Students who disrupt the educational process because of discourteous, threatening, harassing, or other aggressive behavior either in class or online will be expelled. Please arrive on time and stay the entire class period (if you must arrive late or leave early, please sit near the door and try to enter or exit quietly).

- Turn off your cell phone before class begins.
- Please refrain from email or web-surfing activities during class.
- Avoid eating breakfast during class.

**Absence and Late Policy:**

You are responsible for documenting the legitimacy of any absences; this includes:

- illnesses certified by Boynton Health Service or your family physician
- emergencies caused by a death or serious illness in your immediate family
- participation in intercollegiate athletic events or other University activities
- subpoenas, jury duty, military service, and religious observances

If you know that you will be absent when an assignment is due, please submit the assignment beforehand. To submit a late assignment without penalty, you must provide documentation of your absence. Otherwise late writing assignments will be subject to a 25% penalty provided they are submitted within 1 week of the scheduled due date; late assignments will not be accepted after 1 week except in the case of verified illness or family emergency.

**Academic Dishonesty and Plagiarism**

The University of Minnesota’s Student Conduct Code classifies scholastic dishonesty as a disciplinary offense actionable by the University. Scholastic dishonesty is defined as “Submission of false records of academic achievement; cheating on assignments or examinations; plagiarizing; altering, forging, or misusing a University academic record; taking, acquiring, or using test materials without faculty permission; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement.” Plagiarism is deliberately handing in another person's work as your own. It may be something you pulled off the internet, the work of a classmate, or that of another scientist whose work you read while researching a topic. It may be overt, in the form of copying answers from a colleagues' test, or it may be subtle, in the form of quoting or paraphrasing information from another source without properly acknowledging that source. If you want to use the exact wording from a published work, because you think it effectively makes a point, you must put the passage in quotation marks and cite the reference. More often, you will want to paraphrase another’s ideas. Paraphrasing consists of expressing what an author is saying in your own words. In this case you should include reference to the author you paraphrase to indicate that the ideas are someone else's and not yours. If you are not clear about the differences between scholarly citation, collaboration and paraphrasing, please consult either instructor or see the resources available at [http://writing.umn.edu/tww/plagiarism/index.htm](http://writing.umn.edu/tww/plagiarism/index.htm). Evidence of academic dishonesty in any form will be forwarded to the Student Scholastic Conduct Committee. According to University policy, academic dishonesty in any portion of academic work shall be grounds for awarding a grade of F or N for the entire course. Scholastic dishonesty is any act by a student that misrepresents the student’s own academic work or that compromises the academic work of another. Examples include plagiarizing (the presentation of another’s writing or ideas as
your own), cheating on assignments, and engaging in unauthorized collaboration on academic work. You can learn more about UMN policies on dishonesty at the Office for Student Academic Integrity: [http://www.osai.umn.edu/](http://www.osai.umn.edu/)

**Student Mental Health and Stress Management**
As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. University of Minnesota services are available to assist you with addressing these and other concerns you may be experiencing. You can learn more about the broad range of confidential mental health services available on campus via [http://www.mentalhealth.umn.edu/](http://www.mentalhealth.umn.edu/).

**Required Texts**
The readings for the course will be available on the course web site. Because of copyright and fair use restrictions, please do not distribute this to people who are not in our class. Additionally, you may want to consult the following book, when you need more background than is available in the readings.


**Web Page**
The web page for this course is maintained on moodle. You can log in through your My U Portal Toolkits webpage. Alternatively, you can fumble through the links at [https://moodle.umn.edu/](https://moodle.umn.edu/)

**Submitting Assignments**
All written assignments for this class are to be turned in via the Moodle page.

**Readings**

**Week 1:**
Tuesday, January 21 – Wicked problems: conservation in a complex world (Polasky)


Thursday, January 23 – Economics and conservation (Polasky)


**Week 2:**
Tuesday, January 28 – Markets (Polasky)


Thursday, January 30 – Market failure (Polasky)


**Week 3:**
Tuesday February 4 – How do economists assess value (Polasky)


Thursday February 6 – How do social scientists assess value: valuation, norms, and behaviors (David Fulton)


For additional in depth reading:

**Week 4:**
Tuesday, February 11 – The commons and governance of resource use (Polasky)

For additional in depth reading:


Thursday, February 13 – Participatory processes (Kristen Nelson)


**Week 5:**
Tuesday, February 18 – Policy and politics (Kate Knuth)

Readings TBA

Thursday, February 20 – The Endangered Species Act (Blair)


**Week 6:**
Tuesday, February 25 – ESA case study (Carl Tinsley)

Readings TBA

Thursday, February 27 – CBD and CITES (Polasky)


**Week 7:**
Tuesday, March 4 – Conservation and development (Polasky)


Thursday, March 6 – Sustainability (Polasky)


**Week 8:**
Tuesday, March 11 – Population, agriculture, and land use (Polasky)


Thursday, March 13 – Are we on a sustainable path? (Polasky)


**Spring Break**

**Week 9:**
Tuesday, March 25 – Introduction to marine fisheries (Peter Sorenson)


Thursday, March 27 – Bioeconomic models of harvest (Polasky)


**Week 10:**

Tuesday, April 1 – Modeling exploited fisheries (Paul Venturelli)


Thursday, April 3 – Marine protected areas (Ray Newman)


**Week 11:**

Tuesday, April 8 – Overfishing / Carp Control (Burgess and Sorenson)

Thursday, April 10 – Aquatic invasive species (Newman)


**Week 12:**
Tuesday, April 15 – Land use and streams (Newman)


Thursday, April 17 – Communication on controversial topics: Gray Wolves (Strauss)


**Week 13:**
Tuesday, April 22 – Basics of communication: developing a theme (Blair)


Thursday, April 24 – Communicating with non-scientists: the elevator speech (Blair)


**Week 14:**
Tuesday, April 29 – Communicating with non-scientists: the opinion piece (Blair)


Thursday, May 1 – Group presentation
**Week 15:**

Tuesday, May 6 – Group presentation

Thursday, May 8 – Life after graduation: Panel of conservation professionals

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<tr>
<th>Date</th>
<th>Lectures</th>
<th>Instructor</th>
<th>Readings</th>
<th>Deadlines</th>
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<tbody>
<tr>
<td>Jan. 21</td>
<td>Wicked problems</td>
<td>Polasky</td>
<td>Moodle</td>
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<tr>
<td>Jan. 23</td>
<td>Economics and conservation</td>
<td>Polasky</td>
<td>Moodle</td>
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<tr>
<td>Jan. 28</td>
<td>Markets and market failure I</td>
<td>Polasky</td>
<td>Moodle</td>
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<tr>
<td>Jan. 30</td>
<td>Markets and market failure II</td>
<td>Polasky</td>
<td>Moodle</td>
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<tr>
<td>Feb. 4</td>
<td>Economists &amp; assessing value</td>
<td>Polasky</td>
<td>Moodle</td>
<td>Journal selection</td>
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<td>Feb. 6</td>
<td>Social scientists &amp; assessing value</td>
<td>Fulton</td>
<td>Moodle</td>
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<td>Feb. 11</td>
<td>The commons &amp; resource use</td>
<td>Polasky</td>
<td>Moodle</td>
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<td>Feb. 13</td>
<td>Participatory processes</td>
<td>Nelson</td>
<td>Moodle</td>
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<td>Feb. 18</td>
<td>Policy and politics</td>
<td>Knuth</td>
<td>Moodle</td>
<td>Problem set due</td>
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<td>Feb. 20</td>
<td>Endangered Species Act</td>
<td>Blair</td>
<td>Moodle</td>
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<td>Feb. 25</td>
<td>ESA Case Study</td>
<td>Tinsley</td>
<td>Moodle</td>
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<td>Feb. 27</td>
<td>CITES</td>
<td>Polasky</td>
<td>Moodle</td>
<td>Review paper draft due</td>
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<td>Mar. 4</td>
<td>Conservation and development</td>
<td>Polasky</td>
<td>Moodle</td>
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<td>Mar. 6</td>
<td>Sustainability</td>
<td>Polasky</td>
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<td>Mar. 11</td>
<td>Population, food and land use</td>
<td>Polasky</td>
<td>Moodle</td>
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<td>Mar. 13</td>
<td>Are current trends sustainable?</td>
<td>Polasky</td>
<td>Moodle</td>
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<td><strong>Spring Break!</strong></td>
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<td>Mar. 25</td>
<td>Bioeconomic models</td>
<td>Polasky</td>
<td>Moodle</td>
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<td>Mar. 27</td>
<td>Introduction to marine fisheries</td>
<td>Sorenson</td>
<td>Moodle</td>
<td>Peer reviews due</td>
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<td>Apr. 1</td>
<td>Modeling exploited fisheries</td>
<td>Venturelli</td>
<td>Moodle</td>
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<td>Apr. 3</td>
<td>Marine protected areas</td>
<td>Newman</td>
<td>Moodle</td>
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<td>Apr. 8</td>
<td>Overfishing &amp; Invasive Species</td>
<td>Burgess &amp; S</td>
<td>Moodle</td>
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<td>Apr. 10</td>
<td>Aquatic Invasive Species</td>
<td>Newman</td>
<td>Moodle</td>
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<td>Apr. 15</td>
<td>Land-use and streams</td>
<td>Newman</td>
<td>Moodle</td>
<td>Take-home exam due</td>
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<td>Apr. 17</td>
<td>Communication</td>
<td>Strauss</td>
<td>Moodle</td>
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<td>Apr. 22</td>
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<td>Blair</td>
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<td>Apr. 29</td>
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<td>Blair</td>
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<td>May 1</td>
<td>Group presentation</td>
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<td>Moodle</td>
<td>Review paper due</td>
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<td>May 6</td>
<td>Group presentation</td>
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<td>May 8</td>
<td>Professional panel</td>
<td>Guests</td>
<td>Moodle</td>
<td>Editorial page opinion</td>
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