Syllabus

Course Name: Industrial Hemp  
Course Number: WSE 266

Instructors’ names: Anndrea Hermann and John Simonsen

Instructor’s email: hermanna@onid.orst.edu; john.simonsen@oregonstate.edu

Teaching Assistant name and contact info: TBD

Course Credits: This course combines approximately 90 hours of instruction, assignments and exams for 3 credits.

Prerequisites, Co-requisites and Enforced Prerequisites: None

Books: All reading material is provided electronically. You are not required to purchase any books.

Week Run: For the purpose of this course the weeks will run Monday 12:00am PT to Sunday 11:59pm PT. All times are in Pacific Time.

Syllabus is subject to change. Late assignments will not be accepted.

Student emails: You can forward your ONID email to another address if you wish by following these instructions here. You must either check your ONID email or forward your ONID as blackboard only emails direct to your ONID email.

Course Content:
This Ecampus course serves as an introduction to the botany, agronomy, history and use of the hemp plant for food, fiber, and building products. The Cannabis hemp plant has been used by humans since the dawn of the agricultural age for a variety of uses. This remarkable plant has many potential uses in today's world and we are seeing a resurgence of interest in industrial hemp. The use of high THC Cannabis as a drug crop is a different subject, not directly covered in this course. This course serves as an authoritative introduction for those students interested in knowing more about this renewable material that is an excellent source of food, fiber and building products.

Blackboard — This course will be delivered via Blackboard, your online learning community, where you will interact with your classmates and with me. Within the course Blackboard site you will access the learning materials, tutorials, and syllabus; discuss issues; submit assignments; take quizzes; email other students and the instructor; participate in online activities; and display your projects. To preview how an online course works, visit the Ecampus Course Demo. For technical assistance, Blackboard and otherwise, see http://ecampus.oregonstate.edu/services/technical-help.htm.
Measurable Student Learning Outcomes:
At the successful conclusion of this course the student will be able to:

- Identify historically important events relating to hemp agronomy and product applications (exam questions)
- Describe the hemp plant and its various components (homework essay and exam questions)
- Describe the growing, harvesting and processing of hemp for food, fiber and building products (exam questions)
- List examples of a variety of applications for industrial hemp (exam questions)
- Compare hemp properties to those of currently used fibrous materials such as wood and flax (exam questions)
- Critique the social and historical evolution of hemp use and regulation by the USA (homework and exam questions)

Bacc Core Category and learning expectations:

Social Processes and Institutions

1. Use theoretical frameworks to interpret the role of the individual within social process and institutions: The student will assess the individual’s role in the theoretical framework of the American societal government system, how it is theoretically supposed to function vs. the historical facts of the use of industrial hemp both in America and internationally (exam questions and homework).

2. Analyze current social issues and place them in historical context(s): The student will be asked to analyze the issue of the use of industrial hemp as it exists in society today versus its use in the past both in America and internationally (exam questions and homework).

3. Critique the nature, value, and limitations of the basic methods of the social sciences: The student will use data from published surveys, case studies and other methods, concepts, and theories to analyze and describe the structural changes in American business, government and medicine as a result of the changes in perception and attitude towards cannabis and industrial hemp, including individual behavior as part of the social dynamic vs. historical fact. (term paper and final exam questions)

Western Culture

1. Identify significant events, developments, and/or ideas in the Western cultural experience and context: The student will recall and describe from a historical perspective, the origins and evolution of important features of industrial hemp cultivation and use in Western culture, specifically Europe and the US (exam questions and homework).

2. Interpret the influence of philosophical, historical, and/or artistic phenomena in relation to contemporary Western culture: Identify the pivotal changes in industrial hemp technology and regulation, and analyze their effect on products made from hemp and alternative materials and thus on Western culture (exam questions and homework).
3. Analyze aspects of Western culture in relation to broader cultural, scientific, or social processes: The student will interpret the influence of the War on Drugs on the use of industrial hemp and hemp agriculture (exam questions and homework). The student will also defend or rebut both the criminalization and legalization of industrial hemp, to investigate and question the motives of the institutional changes that have taken place in hemp regulation. The student will be asked to question and analyze their assumptions and prejudices regarding industrial hemp and marijuana. (argumentative development assignment lectures 21-26)

**Evaluation of Student Performance:** This course is graded A-F based on homework, quizzes, creativity presentation, a term paper, argumentative development assignment and final exam given via Blackboard.

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<thead>
<tr>
<th>Item</th>
<th># Points</th>
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<tbody>
<tr>
<td>Homework 1-3</td>
<td>139</td>
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<tr>
<td>Creativity presentation</td>
<td>140</td>
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<tr>
<td>Term paper</td>
<td>135</td>
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<tr>
<td>Argumentative development</td>
<td>140</td>
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<tr>
<td>Discussion Board (5)</td>
<td>100</td>
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<tr>
<td>Friday quizzes (7)</td>
<td>70</td>
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<tr>
<td>Final exam</td>
<td>140</td>
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<td><strong>Total</strong></td>
<td><strong>864</strong></td>
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**Learning Resources:** Readings provided for each lecture. No purchased books are required.

*NOTE to prospective students: Please check with the OSU Bookstore for up-to-date DVD, course packet, and textbook information for the term you enroll ([http://www.osubookstore.com/](http://www.osubookstore.com/) or 800-595-0357). If you purchase course materials from other sources, be very careful to obtain the correct ISBN.*

**Course Policies:**

♦ **Exam Policies** — Preparing makeup exams requires a significant effort on the part of the instructor. Consequently, makeup exams will not routinely be given. Makeup exams will be given only for missed exams excused in advance by the instructor. For missed exams that can be anticipated ahead of exam time, advance permission from the instructor to miss the exam will be necessary. Excused absences will not be given for airline reservations, routine illness (colds, flu, stomach aches), or other common ailments. Excused absences will generally not be given after the absence has occurred, except under very unusual circumstances. Regrades of exams will be performed when there is an error and the student requests it. All requests for regrading must be made within 3 class days of the day the exam is returned. After that period of time, grades will be fixed and will not be changed.

♦ **Quiz Policies** — Friday Quizzes will open at 12:00am on Friday and will remain open till 11:59pm on Sunday of the week of each quiz. The allotted time to take the quiz is 15 minutes. One attempt to take the quiz will be allowed however one can start and resume the quiz again but remember that in total you only have the 15 minutes. A one (1) minute warming will appear. One
(1) point will be deducted for each minute taken over the total 15 minutes allowed. To prevent deduction submit the quiz within the 15 minute time frame.

♦ **Incompletes** — Take this course only if you plan to finish it in a timely manner (during this term). I assign an "I" or incomplete only when there is a strong and compelling case for doing so (e.g., health reasons, military commitment). I will not consider assigning an incomplete unless the individual has completed over 50% of the course tasks. Please note that students receiving incompletes are subject to assignment weight reduction (and consequently may not be eligible for A or A- grades) because some of their work will be submitted late.

**Lecture outline:**

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<tr>
<th>Lecture</th>
<th>Content</th>
<th>Bacc Core</th>
<th>Readings and homework</th>
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<tr>
<td><strong>Week 1</strong></td>
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| 1 | *Course introduction:* course goal, learning objectives, exams, grading, questions, feedback  
*General overview of hemp*  
*Lecturer: Anndrea Hermann* | | 1) Small and Marcus Paragraph 1 pp. 1  
-HW #1 assigned  
-Discussion Question #1 posted  
-Term paper assigned  
-Creativity assigned |
| 2 | *Ancient history of hemp up to around 1812*  
*Guest speaker: John Dvorak, Cannabis Curriculum* | WC, SPI | 1) RCA-HC 1863 pp 91-95  
2) ARH&N pp 2 and 14-15  
3) Robinson Chpt. 5 pp 124-141 |
| 3 | *The modern history of hemp up to WWII*  
*Guest speaker: John Dvorak, Cannabis Curriculum* | WC, SPI | 1) 1895 USDA YB pp 198-199  
2) 1899 USDA YB pp 64  
3) 1909 USDA YB pp 77-78  
4) USDA 1901 YB pp 541-554  
-Friday quiz |
| **Week 2** | | | |
| 4 | *Anatomy and botany*  
*Overview, basics of hemp anatomy, plant details*  
*Guest speaker: Barb Lachenbruch, OSU FES* | WC, SPI | 1) Bocsa & Karus Chapter 3 pp 17-46  
-HW #1 due  
-HW #2A and #2B assigned |
| 5 | *Pharmacological properties of Cannabis:*  
*Guest speaker: Fred Stevens, OSU Pharmacy* | WC, SPI | 1) Malka 1st Section  
2) ECCV (video)  
3) CBV (video) |
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<tr>
<th>Week</th>
<th>Topic</th>
<th>Reading Material</th>
<th>Assignments</th>
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| 6    | Current status of hemp use: Guest speaker: Tom Murphy and Ben Droz   | Vote Hemp                                                                        | 1) Johnson, pp. 11-16 & 18-20
2) HR 525 pp 1-2
3) S. 359 pp 1-2
4) Hemp for Victory video
-Creativity Topic & Media Type Due
-Friday quiz |
| 7    | 3 E's of Hemp Environmental, Economics & Entrepreneurship             | Guest speaker: John Dvorak, Cannabis Curriculum                                  | WC, SPI
1) AHCMPMA 2012, pp 3, 26-27
2) CHPB 12-1099, pp 1-2
3) Johnson, pp 5-7
4) Mooleki et al. 2009 p2MO
-HW #2A and #2B due
-HW #3 assigned
-Discussion Question #1 Ends
-Discussion Question #2 posted |
| 8    | How to grow hemp I: Basic agronomy                                   | Soil, climate, sowing, growing, pests, farming hemp Anndrea Hermann             | WC, SPI
1) ValleyBio |
| 9    | Introduction to Breeding Genetics, Field Inspections & Seed Production| Anndrea Hermann and Dr. George Weiblen, University of Minnesota                  | WC, SPI
1) Cir6 pp 1
2) IHTM pp 6-9
3) Pictures pp 1-10
4) Poehlman & Sleper pp 3-4, 6-8
-Friday quiz |
| 10   | Processing the plant for grain: Food production and derivative manufacturing | Anndrea Hermann                                                               | 1) View Canah ISO22000 Cert
2) Oilseed2008 processing pp 1-7
-HW #3 due |
| 11   | Fibre Processing and Decortication technology: Obtaining fiber from the plant | Guest speaker: Don Wirtshafter                                                | 1) Ehrensing, 1998
2) Video Tour Fibre Harvesters from Around the world (a-i)
-Term paper topic due by end of week 4 |
| Week | Research Features: | 1) Hennink S.  
2) CFIA Chpt 3  
3) Gakhar et. al., 2012  
4) Goldberg et. al, 2012  
-Friday quiz |
|------|-------------------|--------------------------------------------------|
| 12   | 1) Emilie Snauwaert, Belgium, InAgro;  
2) Erin Goldberg C.PhD & Dr. Naveen Gakhar Hemp Chicken Feed Research, U of Manitoba, Canada; | |
| Week 5 | The many uses of hemp grain - Food: Oil, seed and protein  
Guest speaker: Anndrea Hermann | WC, SPI  
1) Callaway 2004  
-Discussion Question #2 ends  
-Discussion Question #3 posted  
-Creativity Presentation Evaluation Form Opens |
| 13   | Hemp Body Care & Cosmetics: Products and uses of hemp  
Guest speaker: Gerry Shapiro, Merry Hempsters | WC, SPI  
n/a |
| 14   | Paints, sealers and coatings:  
Guest speaker: Dave Seber, Hempshield, Inc., Forrest Paints (Video), J. Simonsen, OSU | WC, SPI  
1) Wood handbook, Chpt 16 pp. 11-18  
-Friday quiz |
| Week 6 | Creativity presentations viewing during this week | -Creativity presentations due  
-Argumentative Development Assignment Assigned |
| 16   | Fiber and textiles I: History, production, characteristics compared to other fibers  
Guest speaker: Brigitte Cluver, OSU DHE | WC, SPI  
Reading combined for lecture 17 & 18  
1) L. Serbin, pp 3-9  
2) Video LIBECO  
3) Video Dr. Sung |
| 17   | Fiber and textiles II: Examples of modern hemp fabrics and cordage modern technology and the future of hemp fabrics  
Guest speaker: Dr. Wei Cao, California State University Northridge | WC, SPI  
-Creativity presentations student feedback due  
-Friday quiz |
| Week 7 |
|---|---|
| 19 | **Hemp paper:**
*Manufacture and uses*
Guest speaker: Elisheva Shalom, Nautreflections
| WC, SPI | 1) Dewey & Merrill, 1916
2) USDA, 2000
3) Conrad, C 1994
-**Discussion Question #3** ends
-**Discussion Question #4** posted |
| 20 | **International Case Studies:**
1) South Africa, Tony Budden, Hemporium;
2) Uruguay, Fabrizio Giamberini, Latin American Hemp Trading; |
| n/a | 1) UConn Biodiesel video
2) Prade, T. 2011 pg 3 of 93
3) Gasification video
-Term paper due
-Friday quiz |
| 21 | **Bioenergy from hemp:**
Biodiesel
Guest speaker: Richard Parnas, Univ. of Conn. |
| WC, SPI | 1) Video
DS_HempBoard_History |

| Week 8 |
|---|---|
| 22 | **The Vermont experience Political Science:**
*Guest speaker: Amy Shollenberger, Action Circles* |
| WC, SPI | 1) What H267 would do
2) Action Circle Model
3) Owen, A. 2012 pp. 26-40
-Term paper due |
| 23 | **Business, Technical And Market Principles Of Hemp Fiber And Its Applications In Composites And Panelboard Products Part 1**
*Guest speaker: Erwin Lloyd, Acadia BioMaterials Group* |
| WC | 1) Video
DS_HempBoard_History |
| 24 | **Business, Technical And Market Principles Of Hemp Fiber And Its Applications In Composites And Panelboard Products Part 2**
*Guest speaker: Erwin Lloyd, Acadia BioMaterials Group* |
| WC | n/a |

| Week 9 |
|---|---|
| 25 | **Hempcrete:**
*history, how to make it, current uses, potential uses*
*Guest speaker: Steve Allin, Hempbuilding* |
| WC | 1) Allin,2005 pp. 40, 144-149, 52-58, 88-99
2) Video:
Steve_Building_Hist ory |
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<th>Week 9</th>
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| **26** | Hemp plaster/renders: history, how to make it, current uses, potential uses  
Guest speaker: Steve Allin, Hempbuilding | WC | Included in Lect 25 Readings |
| **27** | Hemp-plastic composites: an introduction to natural fiber-plastic composites manufacturing technology  
Guest speaker: Chad Ulven, North Dakota State University | | |

**Week 10**

| **28** | Hemp insulation: thermal properties, manufacturing technology, comparison to commercial materials  
Guest speaker: Ruth DeSantis, Lori-Jo Graham & Laura Mcilveen, Alberta BioMaterials | WC | n/a |
|**29** | Hemp Nanocomposites: a brief introduction to nanotechnology, current technology, future potential  
Guest speaker: John Simonsen, OSU | | |

Continued.....
3) Video: Bringing it home  
4) Video: Hempcrete Fire Test  
-Discussion Question #4 ends  
-Discussion Question #5 posted  
-Argumentative Affirmative and Opposition Statement due by 11:59pm PT on Wednesday of Week 9

1) Joshi et al, 2004. Abstract, Sec 1-2, List Drivers & Conclusion  
2) MCL Video  
3) Plu Video  
4) HCK Video

1) 2003 Nanotechnology 14:1  
-Argumentative Teammate grade due by 11:59pm PT on Wednesday of Week 10
| 30 | Re-cap, status change, going forward | TBA - Discussion Question #5 ends |

**Final exam** - Access dates to be determined

Note: WC = Western Culture. SPI = Social Processes and Institutions, HW = homework

**Statement Regarding Students with Disabilities**

"Accommodations are collaborative efforts between students, faculty and Disability Access Services (DAS). Students with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately at 737-4098."

**Expectations for Student Conduct:**

**Link to Statement of Expectations for Student Conduct**, i.e., cheating policies [http://oregonstate.edu/admin/stucon/achon.htm](http://oregonstate.edu/admin/stucon/achon.htm)

Student conduct is governed by the university’s policies, as explained in the Office of Student Conduct: information and regulations. [http://oregonstate.edu/admin/stucon/achon.htm](http://oregonstate.edu/admin/stucon/achon.htm)

In an academic community, students and faculty, and staff each have responsibility for maintaining an appropriate learning environment, whether online or in the classroom. Students, faculty, and staff have the responsibility to treat each other with understanding, dignity and respect. Disruption of teaching, administration, research, and other institutional activities is prohibited by [Oregon Administrative Rule 576-015-0015 (1) and (2)](http://oregonstate.edu/admin/stucon/achon.htm) and is subject to sanctions under university policies, OSU Office of Student Conduct.

**Academic Integrity** — Students are expected to comply with all regulations pertaining to academic honesty, defined as: *An intentional act of deception in which a student seeks to claim credit for the work or effort of another person or uses unauthorized materials or fabricated information in any academic work*. For further information, visit [Avoiding Academic Dishonesty](http://oregonstate.edu/admin/stucon/achon.htm), or contact the office of Student Conduct and Mediation at 541-737-3656.

**Conduct in this online classroom**: Students are expected to conduct themselves in the course (e.g., on discussion boards, email postings) in compliance with the university's regulations regarding civility. Students will be expected to treat all others with the same respect as they would want afforded themselves. Disrespectful behavior to others (such as harassing behavior, personal insults, inappropriate inappropriate language) or disruptive behaviors in the course (such as persistent and unreasonable demands for time and attention both in and out of the classroom) is unacceptable and can result in sanctions as defined by [Oregon Administrative Rules Division 015 Student Conduct Regulations](http://oregonstate.edu/admin/stucon/achon.htm).
Communications:

**Ground Rules for Online Communication & Participation:**

- **Student emails:** You can forward your ONID email to another address if you wish by following these instructions [here](#). You must either check your ONID email or forward your ONID as blackboard only emails direct to your ONID email.
- **Online threaded discussions** are public messages, and all writings in this area will be viewable by the entire class or assigned group members. If you prefer that only the instructor sees your communication, send it to me by email, and be sure to identify yourself and the class.
- Posting of personal contact information is discouraged (e.g. telephone numbers, address, personal website address).
- **Online Instructor Response Policy:** I or the TA will check email frequently and will respond to course-related questions within 24 hours.
- **Observation of "Netiquette":** All your online communications need to be composed with fairness, honesty and tact. Spelling and grammar are very important in an online course. What you put into an online course reflects on your level of professionalism. Here are a couple of references that discuss
  - writing online: [http://goto.intwg.com/](http://goto.intwg.com/)
- Please check the Announcements, course info, start here, week by week tabs and the course syllabus before you ask general course "housekeeping" questions (i.e. how do I submit assignment 3?). If you don't see your answer there, then please contact me.

**Guidelines for a productive and effective online classroom**

- The discussion board is your space to interact with your colleagues related to current topics or responses to your colleague’s statements. It is expected that each student will participate in a mature and respectful fashion.
- Participate actively in the discussions, having completed the readings and thought about the issues.
- Pay close attention to what your classmates write in their online comments. Ask clarifying questions, when appropriate. These questions are meant to probe and shed new light, not to minimize or devalue comments.
- Think through and reread your comments before you post them.
- Assume the best of others in the class and expect the best from them.
- Value the diversity of the class. Recognize and value the experiences, abilities, and knowledge each person brings to class.
- Disagree with ideas, but do not make personal attacks. Do not demean or embarrass others. Do not make sexist, racist, homophobic, or victim-blaming comments at all.
- Be open to be challenged or confronted on your ideas or prejudices.
Student Assistance:

Contacting the instructor — The initial contact with the instructor will be via email. If further contact is necessary, e.g. phone call, it will be arranged via email.

Technical Assistance — If you experience computer difficulties, need help downloading a browser or plug-in, assistance logging into the course, or if you experience any errors or problems while in your online course, contact the OSU Help Desk for assistance. You can call (541) 737-3474, email osuhelpdesk@oregonstate.edu or visit the OSU Computer Helpdesk online.

Tutoring — Effective fall term 2009 we went to a new Online Tutoring Service - NetTutor to meet the needs of Ecampus students. NetTutor is a leading provider of online tutoring and learner support services fully staffed by experienced, trained and monitored tutors. Students connect to live tutors from any computer that has Internet access. NetTutor provides a virtual whiteboard that allows tutors and students to work on problems in a real time environment. They also have an online writing lab where tutors critique and return essays within 24 to 48 hours.

Course Evaluation: A discussion board will be available for feedback to the instructor regarding the course, assignments, or anything you feel is right or wrong about the course.

OSU Student Evaluation of Teaching — Course evaluation results are extremely important and are used to help me improve this course and the learning experience of future students. Results from the 19 multiple choice questions are tabulated anonymously and go directly to instructors and department heads. Student comments on the open-ended questions are compiled and confidentially forwarded to each instructor, per OSU procedures. The online Student Evaluation of Teaching form will be available toward the end of each term, and you will be sent instructions by Ecampus. You will login to “Student Online Services” to respond to the online questionnaire. The results on the form are anonymous and are not tabulated until after grades are posted.