

Introduction to Aquaponics
Biology 380/580
 Spring 2019

Required Text:

Nelson, R.L. 2008. Aquaponic food production: Raising fish and plants for food and profit. Available at UWSP Bookstore, Amazon.com, or <http://aquaponics.com> (\$29.95)

Instructors:

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|--------------------------|--------------------------------|----------------------------|
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| Phone: 715-346-3228 | Office hours: Online, 24-hours | |

Lecture Outline:

| Date lecture is active online: | Lecture Topic | Chapter in Text | Time |
|-------------------------------------|---|-----------------|---------------------|
| Introduction: | | | |
| January 28 | Introduction | 1, 2 | Two 1-hour lectures |
| January 30 | Aquaponics history | | |
| Aquaponics Systems: | | | |
| February 4 | Aquaponic Applications and Benefits | 3 | 1-hour lecture |
| February 11 | Aquaponics Systems and Components 1 | 4,5 | Two 1-hour lectures |
| February 13 | Aquaponics Systems and Components 2 | | |
| February 18 | Environmental Control | 17,18 | Two 1-hour lectures |
| February 20 | Greenhouse Energy Efficiency | | |
| Biology of Integrated Crops: | | | |
| February 25 | Exam | | Exam |
| February 27 | Water Quality Dynamics 1 | 16 | 1-hour lecture |
| March 4 | Water Quality Dynamics 2 | 16 | Two 1-hour lectures |
| March 6 | Plant Biology | 7,10,11,12 | |
| March 11 | Crop choices, seeding, transplanting, harvesting | 6,14,15 | Two 1-hour lectures |
| March 13 | Fish Selection | | |
| March 25 | Fish Biology, Physiology & Nutrition | 13 | Two 1-hour lectures |
| March 27 | Integrated Pest Management | | |
| April 1 | Exam | | Exam |
| April 3 | Biosecurity | 13 | 1-hour lecture |
| Business & Economics: | | | |
| April 8 | Daily Operation & Recordkeeping | 9 | 1-hour lecture |
| April 15 | Good Agricultural Practices/Best Aquaculture Practices; Rules and Regulations | | 1-hour lecture |
| April 22 | Aquaponics/Greenhouse planning & start-up | 8 | Two 1-hour lectures |
| April 24 | Economics of aquaponics | | |
| May 1 | Marketing Products | 22 | 1-hour lecture |
| May 6 | Wrap-up discussion on Forum (though-out week) | | |

Learning Outcomes:

Upon successful completion of this course you should be able to –

1. Recognize the multiple levels of complexity at which biological systems operate from organism to ecosystem and be able to explain the emergent properties and process characteristic of each level.
2. Critically evaluate and synthesize biological information from multiple sources, including the primary literature, and communicate biological knowledge to both professional and non-professional audiences.
3. Articulate the application of biological sciences to meet the needs of society, including basic research, stewardship of biodiversity, human health, and entrepreneurial innovation.

Supplemental Readings & Online Discussion:

Required additional readings will be assigned throughout the semester. Articles will be available on the course Desire2Learn (D2L) site (as pdf documents).

Online discussion sessions will be held continuously during the semester. They can be accessed through the course Desire2Learn site from the Discussions Tab. This is a time for all students to ask questions about lectures, supplemental readings, and review topics. Participation is considered a required part of the course.

Grading:

| | | |
|-------------|---|------|
| Three Exams | Exam 1 (February 25 ; 100 pts) | 30% |
| | Exam 2 (April 1 ; 100 pts) | 30% |
| | Exam 3 (May 8 ; 100 pts) | 30% |
| | Participation in Online Discussions | 10% |
| Total | (300 pts for exams, 33 pts participation) | 100% |

Discretionary points: Points may be added or subtracted from your final course grade based on effort, improvement, participation, alacrity, and attitude.

Grade Distribution (in %):

| | | |
|------------|------------|------------|
| A = 100-94 | B- = 83-80 | D+ = 69-67 |
| A- = 93-90 | C+ = 79-77 | D = 66-60 |
| B+ = 89-87 | C = 76-74 | F = <60 |
| B = 86-84 | C- = 73-70 | |

Exams: Exams will be emailed and posted on the course D2L site on the date listed (above) at 12 pm (noon) CST. They will be due 48 hours later by 12 pm (noon) CST. While any course content, scientific-based, and economic-based material may be used as references when answering exam questions, ***you should cite your sources, not plagiarize or extensively "quote", and be very critical of web-based information.*** Most web-based information is opinion and may be inaccurate or difficult to substantiate and **should not** be used as a source.

Online Discussions: A portion of your grade (10%) in the course is based on participation in online discussion forums. Forums are used to address questions about lecture topics or similarly associated topics. To earn the 10% you **must** participate in the forum discussions.

Rules & Grades: Only university approved absences, accompanied by appropriate evidence (see undergraduate catalog), will be accepted if you miss the exams. A make-up exam must be taken within 3 class days of the actual exam date. Contact the instructor **before** the exam if there may be a problem. Discussion regarding grades or grading practices will only be conducted during appointments with the instructors; this ensures privacy and confidentiality.

Academic Misconduct: You are responsible for the honest completion and representation of your work and for the respect of others' academic endeavors. Any act of cheating, plagiarism, or academic misconduct is subject to the penalties outlined in UWS Chapter 14; <http://www.uwsp.edu/admin/stuaffairs/rights/rightsCommBillRights.pdf>

Students with Special Needs: First see Student Disability Services and complete the necessary paperwork. Then, contact me so that arrangements can be made for note-taking, testing, report completion and field trip activities.

Technology Requirements

Minimum student technical skills –

In this course you will be expected to complete the following types of tasks:

- Communicate via email
- Complete basic internet searches
- Download and upload documents to the LMS
- Read documents online
- View online videos
- Participate in online discussions
- Complete quizzes/tests online
- Upload documents to a Dropbox
- Participate in synchronous online discussions

Technical assistance -

If you need technical assistance at any time during the course or to report a problem with D2L you can:

- Visit with a Student Technology Tutor
- Seek assistance from the IT Service Desk (Formerly HELP Desk)
 - IT Service Desk Phone: 715-346-4357 (HELP)
 - IT Service Desk Email: techhelp@uwsp.edu
- Contact the Center for Inclusive Teaching and Learning (CITL)
 - CITL Phone: 715-346-2945
 - CITL Email: citl@uwsp.edu

Connectivity and hardware requirements -

Minimum connectivity and hardware requirements are described here:

<https://www.uwsp.edu/d2l/pages/requirements.aspx>

Course Accessibility

Inform your instructor of any accommodations needed -

If you have a documented disability and verification from the Disability and Assistive Technology Center and wish to discuss academic accommodations, please contact the instructor as soon as possible. It is the student's responsibility to provide documentation of disability to Disability Services and meet with a Disability Services counselor to request special accommodation before classes start.

The Disability and Assistive Technology Center is located in 609 Albertson Hall and can be contacted by phone at (715) 346-3365 (Voice) (715) 346-3362 (TDD only) or via email at datctr@uwsp.edu

Statement of Policy -

“UW-Stevens Point will modify academic program requirements as necessary to ensure that they do not discriminate against qualified applicants or students with disabilities. The modifications should not affect the substance of educational programs or compromise academic standards; nor should they intrude upon academic freedom. Examinations or other procedures used for evaluating students' academic achievements may be adapted. The results of such evaluation must demonstrate the student's achievement in the academic activity, rather than describe his/her disability.”

Further information about the university's web accessibility policy can be found here:

<https://www.uwsp.edu/accessibility/Pages/default.aspx>

If modifications are required due to a disability, please inform the instructor and contact the Disability and Assistive Technology Center in 609 ALB, or (715) 346-3365

Instructor Availability

We will attempt to respond to student emails within 24 hours. If you have not received a reply from us within 24-hours please resend your email.

If you have a general course question (not confidential or personal in nature), please post it to the Course Q&A Discussion Forum found on the course homepage. We will post answers to all general questions there so that all students can view them. Students are encouraged to answer each other's questions too.

We will attempt to reply to and assess student discussion posts within 48-hours of discussion closing.

We will attempt to grade written work within 72-hours, however, longer written assignments may take us longer to read and assess.

Student Assessment

Grading Policies -

Graded course activities may include online exams, submitted exams, participation in discussion forums, and occasional topic-specific assignments.

Participation - Students are expected to participate in all online activities as listed on the course calendar. Student participation will be monitored via the LMS time/date stamp and online access occurrence on discussions, chat sessions, and assignment submission. Students should access online content weekly throughout the course.

Complete Assignments -

All assignments for this course will be submitted electronically through D2L unless otherwise instructed. Assignments must be submitted by the given deadline or special permission must be requested from instructor before the due date. Extensions will not be given beyond the next assignment except under extreme circumstances.

All discussion assignments must be completed by the assignment due date and time. Late or missing discussion assignments will affect your grade.

Late Work Policy -

Be sure to pay close attention to deadlines—there will be no make-up assignments or quizzes, or late work accepted without a serious and compelling reason and instructor approval.

Viewing Grades in D2L -

Points you receive for graded activities will be posted to the D2L Grade Book. Click on the Grades link to view your points. The instructor will update the online grades each time a grading session has been completed - typically 10 days following the completion of essay exams and within 24-hours for online exams, quizzes and assignments. You will see a visual indication of new grades posted on your D2L home page under the link to this course.