Crop Sci 401 Turfgrass Science Spring 2015 DRAFT
(3 credits)

Lecture 10:35 – 11:50 am Tuesday and Thursday
204 Johnson Hall

Prerequisite: Crop Sci 301 (or equivalent and/or instructor’s permission)

Instructor: Dr. William Johnston
213 Johnson Hall
509-335-3620
wjohnston@wsu.edu

Text: none required; handouts and required readings will be assigned

General Scope and Rationale:
This course is designed to relate to the student major features of the turfgrass ecosystem, interactions between ecosystem components, the integration of turfgrass management systems, and the use of Best Management Practices to protect environmental quality. Environmental responsible turfgrass management will be emphasized throughout the course. The course will emphasize turfgrass systems (heavily orientated to golf course and sports turf management) in the Pacific Northwest. The goal is to integrate issues of turfgrass management systems and ecosystem function into sound environmental stewardship.

Student Learning Outcomes: The student will:
1. Identify components of the environment and determine how they affect turfgrass ecology and management.
2. Identify the basic components of BMPs and relate them to turfgrass management.
3. Develop strategies for implementing effective and efficient turfgrass management programs.
4. Develop and demonstrate communication skills. This is a writing in the major course [M]; two term papers and a discussion of paper #2’s topic will be required.

Grading:
Tentatively, course grades will be computed on a basis of 600 total points with the following breakdown:
3 one-hour lecture exams 300 points
1 final lecture exam or weekly quizzes 100 points
Turf topic writings and presentation assignment 200 points

<table>
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<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>93% and above</td>
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<tr>
<td>A-</td>
<td>90-92%</td>
</tr>
<tr>
<td>B+</td>
<td>87-89%</td>
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<tr>
<td>B</td>
<td>83-86%</td>
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<tr>
<td>B-</td>
<td>80-82%</td>
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<tr>
<td>C+</td>
<td>77-79%</td>
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<tr>
<td>C</td>
<td>73-76%</td>
</tr>
<tr>
<td>C-</td>
<td>70-72%</td>
</tr>
<tr>
<td>D+</td>
<td>67-69%</td>
</tr>
<tr>
<td>D</td>
<td>60-66%</td>
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<tr>
<td>F</td>
<td>below 60%</td>
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Idaho students: A = 90% and above; B = 80-89%; C = 70-79%; D = 60-69%; and F + below 60%.
No curving of grades will be done. Missed exams may be made up at the discretion of the instructor, provided a "valid" reason is presented. All exams will include essay/discussion type questions and specific objective questions covering lecture and assigned reading materials. Old (past few years) lecture exams will be made available as study aids.

**Attendance Policy:** Attendance is highly recommended at all class lectures and is mandatory at the designated discussion period(s) for Paper 2. Students not attending Paper 2 class presentations and discussions will receive zero points for that portion of the grade (20 points) assigned to Paper 2.

**Angel/Course Website:** Angel will be used to provide course material and communicate with students. See http://lms.wsu.edu/ for Angel instructions.

**WSU Reasonable Accommodations Statement:** Students with Disabilities: Reasonable accommodations are available for students with a documented disability. If you have a disability and need accommodations to fully participate in this class, please either visit or call the Access Center (Washington Building 217; 509-335-3417) to schedule an appointment with an Access Advisor. All accommodations MUST be approved through the Access Center. For more information contact a Disability Specialist on your home campus: **Pullman or WSU Online:** http://accesscenter.wsu.edu, Access.Center@wsu.edu

**Academic Integrity:** Academic integrity is the cornerstone of the university. You assume full responsibility for the content and integrity of the academic work you submit. You may collaborate with classmates on assignments, with the instructor's permission. However the guiding principle of academic integrity shall be that your submitted work, examinations, reports, and projects must be your own work. Any student who violates the University's standard of conduct relating to academic integrity will be referred to the Office of Student Conduct and may fail the assignment or the course. You can learn more about Academic Integrity on your campus using the URL listed in the Academic Regulations section or to http://conduct.wsu.edu/academic-integrity-policies-and-resources. Please use these resources to ensure that you don’t inadvertently violate WSU's standard of conduct.

Violation of copyright laws and the intellectual property rights of others is prohibited. Prohibited acts include, but are not limited to:

1. Posting the works of another person on an internet website without the permission of the creator;
2. Copying the creative works of another without the permission of the creator;
3. Selling a recording of a presentation by another without the permission of the presenter;
4. Claiming the works of another as one’s own;
5. Using the copyrighted works or intellectual property of another for profit without the permission of the owner;
6. Copying or digitally transmitting video or audio files without the permission of the owner; or displaying a copyrighted work publicly without the permission of the owner.
Safety and Emergency Notification: Pullman: Washington State University is committed to enhancing the safety of the students, faculty, staff, and visitors. It is highly recommended that you review the Campus Safety Plan (http://safetyplan.wsu.edu/) and visit the Office of Emergency Management web site (http://oem.wsu.edu/) for a comprehensive listing of university policies, procedures, statistics, and information related to campus safety, emergency management, and the health and welfare of the campus community.
# Lecture Outline

**Professor:** Dr. William Johnston  
**Email:** wjohnston@wsu.edu

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Topic</th>
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| **1** | Class introductions  
Introduction to history of turfgrass management  
Pre-course review exam |
| **2-3** | Turfgrass environment  
Abiotic  
Biotic  
Microbiology of soils |
| **4-5** | Environmental issues in turf  
Historical perspective and environmental ethics  
Benefits of turfgrass systems  
Introduction to current issues |
| **6** | Objectives of turfgrass management  
Turfgrass manager’s perspective  
Ecological perspective |
| **7-8** | Turfgrass cultivar development  
Conventional development  
Turfgrass biotechnology and GM turfgrass  
Native grasses  
Pacific Northwest Grass Seed Production |
| **9** | Exam 1 February x |
| **10-13** | BMPs/IPM integrated management systems for turfgrass  
Concepts/components  
Environmental monitoring (example for *Poa annua*)  
Organic turfgrass management |
| **14-16** | Utilization and conservation of water resources  
Turfgrass sand-based rootzones  
Soil water dynamics  
Water quality issues in urban sites  
Effluent water use on turf |
| **17** | Wetland and wildlife conservation issues |
| **18** | Exam 2 March x |
| **19** | Turfgrass nutrient management |
| **20-24** | Turfgrass pesticides and plant growth regulators |
| **25-27** | Cultural problems and practices  
Thatch  
Compaction  
Aerification  
Topdressing  
Rolling and green speed  
Summer stress on golf greens  
Algae and moss |
| **28** | Exam 3 April x |
| **29-30** | Writing assignment #2 class presentations and discussion |

**Final Exam**
The purpose of the writing assignments is to acquaint the student with the
turfgrass literature and methods of reading and writing succinctly in a professional style
for a reader in turfgrass management. Crop Sci 401 is a [M] course, writing in the major.
Two papers and a presentation/discussion will be required during the semester.

Paper #1: 3-4 pages, exclusive of references cited page, typed, double-spaced, 12
point font, 1 inch margins will be on an area chosen by the student; a topic list will be
provided.

Paper #2: topic to be assigned by instructor; will be on a particular problem at the
forefront of turfgrass management. The student will develop a 2-3 page, exclusive of
reference cited page, typed, double-spaced, 12 point font, 1 inch margins paper on the
selected topic.

Units of measure: The units used in the papers may be English or metric, but
must be consistent throughout paper.

References: Paper #1, a minimum of 5 sources must be cited in the paper with at
least 3 of the references being from 2009 or later.
Paper #2, a minimum of 4 sources must be cited in the paper.

Note: Absolutely no more than two (2) of references can come directly from WEB
sites for either paper.

Reference style must be in the form used in the Agronomy Journal
(American Society of Agronomy). Some examples follow:

Journal example:
Sims, J. L., M. Caser, and K. L. Wells. 1984. Fertilizer placement effects on growth,

Book example:
and plant growth. 5th ed. Prentice-Hall, Englewood Cliffs, NJ.

Chapter in a book example:
Utilization of wild Arachis species as a source of Cercospora leafspot resistance in
groundnut breeding. p. 673-677. In G. K. Manna and U. Sinhu (ed.) Perspectives in
cytology and genetics, Vol. 3. Hindasia Publishers, Delhi, India.

General magazine article example:

Article with no identifiable author (avoid use if possible) example:

State publication example:

Web site example:

Grading: 200 points. Grading will be based primarily on content, composition, and references of the paper. For paper #2, 20 points will be related to class presentation, discussion, and participation.

Due Dates: NOTE: Dates will be changed for Spring 2015.

PAPER 1 (100 points) (Subject area chosen by student; 3-4 pages)
Jan. 17 Paper topic due (5 points)
Jan. 24 Paper outline and references due (15 points)
Jan. 31 1st draft due (25 points peer reviewer; 25 points Instructor/TA)
Feb. 7 1st draft returned
Feb. 14 Final paper due (30 points)

PAPER 2 (100 points) (General subject area to be assigned by instructor; 2-3 pages)
March 7 Topic assigned
March 21 Paper outline and references due (20 points)
March 28 1st draft due (25 points)
April 4 1st draft returned
April 11 Final paper and PowerPoint presentation due (35 points)
April 25 PowerPoint presentations and discussion (20 points)

Due dates missed will be penalized 1 point per day (Monday thru Friday).
Grading Rubric

Writer’s name  ____________________________________

Reviewer’s name  ____________________________________

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<thead>
<tr>
<th>Title (1 point)</th>
<th>_____</th>
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<td>Is the title explicit and informative?</td>
<td>_____</td>
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<tr>
<th>Introduction (4 points)</th>
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<tr>
<td>The topic is well introduced.</td>
<td>_____</td>
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<tr>
<td>Clearly states the question to be addressed in paper.</td>
<td>_____</td>
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<tr>
<td>States the points or ideas to be develop in the body of text.</td>
<td>_____</td>
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<tr>
<th>Body of text (4 points)</th>
<th>_____</th>
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<td>The points or ideas stated in the introduction are well described</td>
<td>_____</td>
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<tr>
<td>Is the evidence/information:</td>
<td>_____</td>
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<tr>
<td>Relevant?</td>
<td>_____</td>
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<tr>
<td>Accurate?</td>
<td>_____</td>
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<tr>
<td>Complete?</td>
<td>_____</td>
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<tr>
<td>Does the interpretation and analysis of evidence/information show logical reasoning?</td>
<td>_____</td>
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<tr>
<td>Accurate conclusions</td>
<td>_____</td>
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<tr>
<td>Is there sufficient knowledge of the subject demonstrated?</td>
<td>_____</td>
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<tr>
<td>Does the use of specialized terms/concepts demonstrate understanding?</td>
<td>_____</td>
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<tr>
<td>Present the information clearly?</td>
<td>_____</td>
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<tr>
<td>Not redundant.</td>
<td>_____</td>
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<tr>
<th>Organization (4 points)</th>
<th>_____</th>
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<td>Do the parts connect with each other and the governing idea?</td>
<td>_____</td>
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<tr>
<td>Readability</td>
<td>_____</td>
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<tr>
<td>Transitions between ideas</td>
<td>_____</td>
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<tr>
<td>Logical sequence</td>
<td>_____</td>
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Conclusion (4 points)
- Does the conclusion summarize the paper?
- Are the main points restated?

Form (4 points)
- To what extent does the text reveal evidence of:
  - Editing? (Format)
  - Proofreading? (Punctuation, spelling, typos, etc.)
- Correctness of grammar; writing style and vocabulary
- How accurately and completely is the information cited?

References (4 points)
- Use of the correct number of sources, year of publication, and number of references from WEB sites
- Reference style must be in the form used in the Agronomy Journal

Advice to student on draft
What is good about the paper?
Potential for improvement? Further research/work needed?