
Advanced Turfgrass Management

College of Agriculture, Food and Natural Resources

Instructors:

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Division contact: Ms. Rita Gerke, Administrative Assistant, (573) 882-7511

Meeting Time: Tuesday, 8:00 – 8:50 am (lecture) & Thursday, 8:00 – 9:50 am (lecture/lab)

Location: 200 Waters

Prerequisite: Plant Science 3355 or consent of instructor

Course Description: Provides turfgrass majors a more informative and applicable look at mathematics of turfgrass management, application techniques, cultural practices, and soil/water relationships applicable to careers in golf course and sports turf management, lawn care, and professional grounds maintenance.

Learning Objectives:

- 1) Interpret pesticide labels and pesticide formulations.
- 2) Apply mathematical calculations for irregular area measurements (putting greens, lakes, fairways, etc.), pesticides, fertilizers, topdressing, and irrigation/water management.
- 3) Apply basic principles in the calibration of sprayers and spreaders.
- 4) Analyze components of drainage and irrigation designs for golf courses and athletic fields.
- 5) Conduct particle size analysis, uniformity coefficients and $K_{\text{saturation}}$ to better understand soil/water relations in multiple root-zone profiles for golf courses and athletic fields.
- 6) Formulate best management practices for turfgrasses under summer stress.
- 7) Apply best management practices for turfgrasses as they relate to the latest water quality issues affecting the turfgrass industry.
- 8) Understanding what it takes to be a successful manager.
- 9) Develop an annual budget.

References:

Beard, James B. 2002. Turf Management for Golf Courses. Second Edition. Ann Arbor Press, Chelsea, MI.

Puhalla, Krans & Goatley. 1999. SPORTS FIELDS – A Manual for Design, Construction and Maintenance. Ann Arbor Press, Chelsea, MI.

Christians and Agnew. 2000. The Mathematics of Turfgrass Maintenance. Fourth Edition. Ann Arbor Press, Chelsea, MI.

Students will be required to purchase “The Mathematics of Turfgrass Maintenance” book. However, the other listed reference materials will be very helpful throughout the course. Students will receive a large three-ring binder on the first day of class to hold a series of handouts pertaining to the course objectives.

Professionalism Statement: Students are guided by specific values and characteristics. Characteristics on which you will be judged in this course include punctuality, attendance, collegial attitude, and participation. Because this course relies extensively on discussion and other interactions, attendance is crucial to your success and that of your peers. In accordance with University policy, there are no excused or official absences; however, if an illness, emergency, or special circumstances arises, contact the coordinating instructor prior to the scheduled class session; otherwise, your attendance and participation are firm expectations.

Statement for A.D.A.: If you need accommodations because of a disability, if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please inform me immediately. Please see me privately after class, or at my office.

To request academic accommodations (for example, a note taker or extended time on exams), students must also register with the Office of Disability Services (<http://disabilityservices.missouri.edu>), S5 Memorial Union, 882-4696. It is the campus office responsible for reviewing documentation provided by students requesting academic accommodations, and for accommodations planning in cooperation with students and instructors, as needed and consistent with course requirements. For other MU resources for students with disabilities, click on "Disability Resources" on the MU homepage.

Nondiscrimination Statement: Faculty and staff in the College of Agriculture, Food and Natural Resources are committed to cultural diversity and nondiscrimination toward all people with regards to race, color, religion, national origin, ancestry, gender, age, all veterans, and sexual orientation.

Statement for Academic Dishonesty: Academic honesty is fundamental to the activities and principles of a university. All members of the academic community must be confident that each person's work has been responsibly and honorably acquired, developed, and presented. Any effort to gain an advantage not given to all students is dishonest whether or not the effort is successful. The academic community regards academic dishonesty as an extremely serious matter, with serious consequences that range from probation to expulsion. When in doubt about plagiarism, paraphrasing, quoting or collaboration, consult your course instructor.

Course Schedule

Subject to change due to availability of instructors and students' basic knowledge of topics.

Date	Topic	Instructor
Week 1 T	Course objectives, format and schedule Interpretation of pesticide labels	Fresenburg
Week 1 Th	Pesticide formulations Mathematics for turfgrass maintenance Area measure (Bring calculator)	Fresenburg
Week 2 T	Mathematics for turfgrass maintenance Pesticide, fertilizer	Fresenburg
Week 2 Th	Mathematics for turfgrass maintenance Pesticide, fertilizer Worksheet assignment (50 points)	Fresenburg
Week 3 T	Sprayer and spreader calibration (video and discussion)	Fresenburg
Week 3 Th	Sprayer and spreader calibration hands-on lab Turfgrass Research – South Farm Lab assignment (Due at end of class – 50 points)	Fresenburg
Week 4 T	Basic drainage	Jim Surrell
Week 4 Th	Advance Irrigation	Keith Schweiger
Week 5 T	Aeration and topdressing	Fresenburg
Week 5 Th	Core and topdressing mathematics Worksheet assignment (50 points)	Fresenburg
Week 6 T	Irrigation management mathematics Worksheet assignment (50 points)	Fresenburg
Week 6 Th	Exam (150 points) Calculators will be supplied	Fresenburg
Week 7 T	Root zone mixes for sports fields and putting greens	Anderson
Week 7 Th	Root zone lab – particle size analysis by sieving, coefficient of uniformity, fineness coefficient Turfgrass Research – South Farms Lab assignment (50 points)	Anderson, Fresenburg
Week 8 T	Root zone compaction and modification (amendments)	Anderson
Week 8 Th	Physical properties of root zones lab– hardness, shear strength and drainage Turfgrass Research – South Farms	Anderson, Fresenburg
Week 9 T	Hydrology of root zones	Anderson
Week 9 Th	Hydrology lab – root zone Ksat ABNR Bldg. Soils lab – TBA Lab assignment (50 points)	Anderson, Fresenburg
Week 10	BREAK WEEK	

Week 11 T	Physiology of turfgrasses under stress	Xiong
Week 11 Th	Physiology of turfgrasses under stress	Xiong
Week 12 T	PLS Worksheet assignment (50 points)	Fresenburg
Week 12 Th	Managing a professional sports field	J. Scott/J. Minnick
Week 13 T, Th	Water quality issues affecting turfgrass management	Broz
Week 14 T	Pest reduction through cultural practices	Fresenburg
Week 14 Th	Diagnosis of turfgrass problems (field trip)	Fresenburg
Week 15 T	Budgeting – Bringing it all together!	Fresenburg
Week 15 Th	Standing apart, Success in the industry	Mike Munie
Week 16 T, Th	Budgeting continued Worksheet assignment (50 points) Review	Fresenburg
Week 16 F	Reading Day	
Finals Week	Final Exam (150 points) 200 Waters Hall	Fresenburg

Grading: Undergraduate level - 4355

Worksheets & lab assignments: 8 – 50 point assignments (400 points)

Mid-Term Exam: 150 points

Final Exam: 150 points

Total Possible Points: 700

Grading scale:

677 to 700 points = A+, 653 to 676 points = A, 630 to 652 points = A-

607 to 629 points = B+, 583 to 606 points = B, 560 to 582 points = B-

537 to 559 points = C+, 513 to 536 points = C, 490 to 512 points = C-

467 to 489 points = D+, 443 to 466 points = D, 420 to 442 points = D-

Less than 420 = F

Worksheet and lab assignment grades will be reduced 10% if turned in after the due without prior approval from the instructor. Due dates are subject to change as the instructor warrants. Final exam dates are set according to the university's final exam schedule and will not change.

Grading: Graduate level - 7355

Worksheets & lab assignments: 8 – 50 point assignments (400 points)

Mid-Term Exam: 150 points

Final Exam: 150 points

Topics Papers: 3 – 100 points papers (300 points)

Total Possible Points: 1000

Grading scale:

900 to 1000 points = A

800 to 899 points = B

700 to 799 points = C

Less than 700 = F

Graduate student will write three issues papers (3 to 5 pages) on topics of their choosing pertaining to turfgrass management on golf courses or sports fields approved by the instructor. Due dates will be set forth by the instructor in the beginning of the course. Worksheet and lab assignment grades will be reduced 10% if turned in after the due without prior approval from the instructor. Due dates are subject to change as the instructor warrants. Final exam dates are set according to the university's final exam schedule and will not change.