SYLLABUS
ENR 5272
Turfgrass Soils
Au 2020, online & asynchronous

COURSE OVERVIEW

Instructor

Instructor: Ed McCoy
Email address: mccoy.13@osu.edu
Phone number: 3304668758
Office hours: By appointment.

Course description

Soil properties and processes of specifically designed and constructed soils meeting the agronomic and playability requirements of golf course and athletic field venues.

Managed turfgrass soils, consisting principally of golf courses and athletic fields, are unique soil systems in that they 1) exist on manipulated landscapes, 2) may contain purposely crafted soil materials and profiles, 3) are exposed to frequent human contact and 4) are often subject to performance expectations with regard to the play of the game. Consequently, the purpose of this course is to examine these unique soils focusing on their physical properties and processes. The rationale for this focus is because physical property problems are commonly observed and can be quite expensive to resolve within human created soilscapes. The course will principally cover Soil Science principles as applied to these turfgrass landscapes.

Credit hours

2 credit hours.
Pre-requisites
None.

Course learning outcomes
By the end of this course, students should successfully be able to:

- Students gain an understanding of the unique requirements of turfgrass soils in supporting plant growth and providing a playable surface.

- Students learn the dependence of soil strength on soil composition and wetness, and how these dependencies differ between compressive and shear stresses.

- Students gain an appreciation for the role of sand and amendments in turfgrass soils and learn methods to judge their quality.

- Students discover the scientific principles upon which some of the more popular soils for high-traffic situations are designed.

- Students learn the theory and common practices for drainage of turfgrass soils.

COURSE MATERIALS AND TECHNOLOGIES

Textbooks
REQUIRED
A formal textbook does not exist for this subject area. A set of reading materials by the instructor, including “Golf Course Soil and Water Science”, “Commercial Amendments for Sand-Based Root Zones” and the manual “Drainage Systems for Golf Courses” are available on Carmen (https://carmen.osu.edu). Lecture handouts are also available and these should be printed and used to follow along with the on-line lectures and to record notes. All animations and videos presented during the on-line lectures will also be included on Carmen for independent viewing. Please check Carmen for updates throughout the semester.
RECOMMENDED/OPTIONAL

Seminal publications in this subject area by the instructor are also uploaded to Carmen.

Course technology

All lectures are recorded and posted on Carmen (https://carmen.osu.edu).

For help with your password, university e-mail, Carmen, or any other technology issues, questions, or requests, contact the OSU IT Service Desk. Standard support hours are available at https://ocio.osu.edu/help/hours, and support for urgent issues is available 24x7.

- Carmen Help: https://resourcecenter.odee.osu.edu/carmencanvas
- Self-Service and Chat support: http://ocio.osu.edu/selfservice
- Phone: 614-688-HELP (4357)
- Email: 8help@osu.edu
- TDD: 614-688-8743

BASELINE TECHNICAL SKILLS FOR ONLINE COURSES

- Basic computer and web-browsing skills
- Navigating Carmen

REQUIRED EQUIPMENT

- Computer: current Mac (OS X) or PC (Windows 7+) with high-speed internet connection

REQUIRED SOFTWARE

- Microsoft Office 365: All Ohio State students are now eligible for free Microsoft Office 365 ProPlus through Microsoft’s Student Advantage program. Full instructions for downloading and installation can be found https://ocio.osu.edu/kb04733.
How your grade is calculated

<table>
<thead>
<tr>
<th>ASSIGNMENT CATEGORY</th>
<th>POINTS</th>
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<tbody>
<tr>
<td>Midterm Exam 1</td>
<td>25</td>
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<tr>
<td>Midterm Exam 2</td>
<td>25</td>
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<tr>
<td>Independent, Experiential Learning Activity</td>
<td>20</td>
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<tr>
<td>Final Exam</td>
<td>30</td>
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<td><strong>Total</strong></td>
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See course schedule, below, for due dates.

Grading scale

- 93–100: A
- 90–92.9: A-
- 87–89.9: B+
- 83–86.9: B
- 80–82.9: B-
- 77–79.9: C+
- 73–76.9: C
- 70 –72.9: C-
- 67 –69.9: D+
- 60 –66.9: D
- Below 60: E

Differential Expectations for Undergraduate & Graduate Students

Enrolled graduate students will complete a 2nd experiential learning activity with both activities totaling 20 points.

Assignments

**Midterm Exams**: The midterm exams will consist of 25 multiple choice or true/false questions covering lectures 1 through 13 for midterm 1 and 14 through 24 for midterm 2. Your score on each midterm will be worth 25% of your total grade and you will only be given one attempt at
the exam. Also, there is a strictly enforced, 30 min time limit for completing each midterm exam. Because of this time limit, you will not be able to look up question answers, so it is advised to sufficiently study the appropriate course material before attempting the exam. Finally, randomization features available through Carmen will be employed to make your specific exam unique. This reflects my intention that you will do your own work.

Independent, Experiential Learning Activity(s): The independent activity assigned to both undergraduate and graduate students involves running 4 soil organic matter (SOM) management scenarios using the Greens SOM Management Tool Ver. 5.1, recently developed by your instructor. This Management Tool was developed to aid superintendent in planning future turfgrass culture and SOM control operations to control organic matter accumulation. The goal for students is to learn the operation of this Management Tool (with a provided Users Guide) and to discover how turfgrass growth in conjunction with various SOM control operations can be used to achieve target organic matter contents within the surface layer of a putting green. A report, including answers to provided questions, will be posted to Carmen for grading. For undergraduate students your score on this activity will constitute 20% of your final grade. For graduate students the activity will be worth 10%. Resources and guidelines for completing this activity are posted on Carmen.

The second independent activity, for graduate students only, is to assemble a turfgrass soils photo album. The purpose of this activity is for the students to interact, document and describe turfgrass soils within their natural setting. It is accomplished by visiting 3 to 5 golf course or athletic field sites, withdrawing the soil using a coring tool, taking digital photographs of the exposed soil profile, and writing a brief paragraph describing each photograph. The photo album, including answers to provided questions will also be posted to Carmen for grading. For graduate students, your score on this activity will constitute 10% of your final grade. Guidelines for completing this activity, including a sample report are posted on Carmen.

Final Exam: The final exam will consist of 30 multiple choice or true/false questions. Approximately 15 of the questions will cover material presented in lectures 25 through 31, and approximately 15 of the questions will cover material presented in lectures 1 through 24. Your score on the final will be worth 30% of your total grade, and you will only be given one attempt at the exam. There is a strictly enforced, 55 min time limit for completing the exam, which by the way, allows 50% more time on a per question basis than you had for the midterms. As with the midterms you will not be able to look up question answers, so it is advised to sufficiently study the appropriate course material before attempting the exam. Also, randomization features available through Carmen will be employed to make your specific exam unique.
Late assignments

Late submissions will not be accepted. Please refer to Carmen for due dates.

Makeup opportunities will be given for missed midterms and the final exam provided a valid written excuse is provided prior to the event. No extra-credit opportunities will be made available. Incompletes will not be given unless pre-arranged with the instructor.

Under extenuating circumstances please contact the instructor as soon as possible to make arrangements.

Faculty feedback and response time

I am providing the following list to give you an idea of my intended availability throughout the course. (Remember that you can call 614-688-HELP at any time if you have a technical problem.)

- **Grading and feedback**: For midterms, the independent activities and the final exam, you can generally expect feedback within 7 days.
- **E-mail**: I will reply to e-mails within 24 hours on school days.

PARTICIPATION AND ATTENDANCE

Student participation requirements

Because this is a distance-education course, your attendance is based on your online activity. The following is a summary of everyone's expected online activity:

- **Logging in**: AT LEAST ONCE PER WEEK
  
  Be sure you are logging in to the course in Carmen each week, including weeks with holidays or weeks with minimal online course activity. (During most weeks you will probably log in many times.) If you have a situation that might cause you to miss an entire week of class, discuss it with me as soon as possible.
OTHER COURSE POLICIES

Health & safety requirements

All students, faculty and staff are required to comply with and stay up to date on all university safety and health guidance (https://safeandhealthy.osu.edu), which includes wearing a face mask in any indoor space and maintaining a safe physical distance at all times. Non-compliance will result in a warning first, and disciplinary actions will be taken for repeated offenses.

Academic integrity policy

POLICIES FOR THIS ONLINE COURSE

- **Exams**: You must complete the midterm and final exams yourself, without any external help or communication.

- **Written assignments**: Your written assignments should be your own original work. In formal assignments, you should follow [MLA] style to cite the ideas and words of your research sources. You are encouraged to ask a trusted person to proofread your assignments before you turn them in—but no one else should revise or rewrite your work.

- **Reusing past work**: In general, you are prohibited in university courses from turning in work from a past class to your current class, even if you modify it. If you want to build on past research or revisit a topic you've explored in previous courses, please discuss the situation with me.

- **Falsifying research or results**: All research you will conduct in this course is intended to be a learning experience; you should never feel tempted to make your results or your library research look more successful than it was.

OHIO STATE’S ACADEMIC INTEGRITY POLICY

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University’s *Code of Student Conduct*, and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must
recognize that failure to follow the rules and guidelines established in the University’s Code of Student Conduct and this syllabus may constitute “Academic Misconduct.”

The Ohio State University’s Code of Student Conduct (Section 3335-23-04) defines academic misconduct as: “Any activity that tends to compromise the academic integrity of the University, or subvert the educational process.” Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the University’s Code of Student Conduct is never considered an “excuse” for academic misconduct, so I recommend that you review the Code of Student Conduct and, specifically, the sections dealing with academic misconduct.

If I suspect that a student has committed academic misconduct in this course, I am obligated by University Rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the University’s Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me.

Other sources of information on academic misconduct (integrity) to which you can refer include:

- The Committee on Academic Misconduct web pages (COAM Home)
- Ten Suggestions for Preserving Academic Integrity (Ten Suggestions)
- Eight Cardinal Rules of Academic Integrity (www.northwestern.edu/uacc/8cards.htm)

Copyright disclaimer

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

Creating an Environment Free from Harassment, Discrimination, and Sexual Misconduct

The Ohio State University is committed to building and maintaining a community to reflect diversity and to improve opportunities for all. All Buckeyes have the right to be free from harassment, discrimination, and sexual misconduct. Ohio State does not discriminate on the
basis of age, ancestry, color, disability, ethnicity, gender, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, pregnancy (childbirth, false pregnancy, termination of pregnancy, or recovery therefrom), race, religion, sex, sexual orientation, or protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment. Members of the university community also have the right to be free from all forms of sexual misconduct: sexual harassment, sexual assault, relationship violence, stalking, and sexual exploitation.

To report harassment, discrimination, sexual misconduct, or retaliation and/or seek confidential and non-confidential resources and supportive measures, contact the Office of Institutional Equity:

1. Online reporting form at equity.osu.edu,
2. Call 614-247-5838 or TTY 614-688-8605,
3. Or Email equity@osu.edu

The university is committed to stopping sexual misconduct, preventing its recurrence, eliminating any hostile environment, and remedying its discriminatory effects. All university employees have reporting responsibilities to the Office of Institutional Equity to ensure the university can take appropriate action:

All university employees, except those exempted by legal privilege of confidentiality or expressly identified as a confidential reporter, have an obligation to report incidents of sexual assault immediately. The following employees have an obligation to report all other forms of sexual misconduct as soon as practicable but at most within five workdays of becoming aware of such information: 1. Any human resource professional (HRP); 2. Anyone who supervises faculty, staff, students, or volunteers; 3. Chair/director; and 4. Faculty member.

This course adheres to The Principles of Community adopted by the College of Food, Agricultural, and Environmental Sciences. These principles are located on the Carmen site for this course; and can also be found at https://go.osu.edu/principlesofcommunity. For additional information on Diversity, Equity, and Inclusion in CFAES, contact the CFAES Office for Diversity, Equity, and Inclusion (https://equityandinclusion.cfaes.ohio-state.edu/). If you have been a victim of or a witness to a bias incident, you can report it online and anonymously (if you choose) at https://studentlife.osu.edu/bias/report-a-bias-incident.aspx.

**Counseling and Consultation Services/Mental Health**

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. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life Counseling and Consultation Services (CCS) by visiting ccs.osu.edu or calling (614) 292-5766. CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on-call counselor when CCS is closed at (614) 292-5766 and 24 hour emergency help is also available through the 24/7 National Prevention Hotline at 1-(800)-273-TALK or at suicidepreventionlifeline.org.

David Wirt, wirt.9@osu.edu, is the CFAES embedded mental health counselor. He is available for new consultations and to establish routine care. To schedule with David, please call 614-292-5766. Students should mention their affiliation with CFAES when setting up a phone screening.

ACCESSIBILITY ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

The university strives to make all learning experiences as accessible as possible. In light of the current pandemic, students seeking to request COVID-related accommodations may do so through the university's request process, managed by Student Life Disability Services. If you anticipate or experience academic barriers based on your disability (including mental health, chronic, or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.
## COURSE SCHEDULE

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<th>Week</th>
<th>Dates</th>
<th>Topics, Lectures, Assignments, Deadlines</th>
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| 1    | 25 – 29 Aug | **Topic:**  
  - Soils of the Linksland  
  **Video Lectures:**  
  - Lecture 1 |
| 2    | 30 Aug – 5 Sep | **Topic:**  
  - Surface Water Runoff  
  **Video Lectures:**  
  - Lectures 2 & 3 |
| 3    | 6 – 12 Sep  | **Topics:**  
  - Traffic & the Compressive Strength of Soils  
  **Video Lectures:**  
  - Lectures 4 & 5 |
| 4    | 13 – 19 Sep | **Topics:**  
  - Shear Strength of Soils & Soil Compaction  
  **Video Lectures:**  
  - Lectures 6 & 7 |
| 5    | 20 – 26 Sep | **Topic:**  
  - Root Zone Shearing  
  **Video Lectures:**  
  - Lectures 8 & 9 |
| 6    | 27 Sep – 3 Oct | **Topics:**  
  - Sand Particle Sizes, Uniformity, Shape & Mineralogy  
  **Video Lectures:**  
  - Lectures 10 – 13 |
<p>| 7    | 4 – 10 Oct  | <strong>Topic:</strong> |</p>
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<th>Week</th>
<th>Dates</th>
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<tr>
<td>8</td>
<td>11 – 17 Oct</td>
<td>• Soil Water Principles</td>
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<td><strong>Video Lectures:</strong></td>
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<td></td>
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<td>• Lectures 14 – 16</td>
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<td><strong>Assignment:</strong></td>
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<td>• Midterm 1, Noon, Sun Oct 4 – 11:59 pm, Tue Oct 6</td>
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<td>18 – 24 Oct</td>
<td><strong>Topics:</strong></td>
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<td></td>
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<td>• Layered Soils &amp; Drainage</td>
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<td>• Lectures 17 – 19</td>
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<td>25 – 31 Oct</td>
<td><strong>Topics:</strong></td>
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<td>• Athletic Field Root Zones &amp; Topdressing Sands</td>
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<td>• Lectures 20 &amp; 21</td>
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<td>1 – 7 Nov</td>
<td><strong>Topic:</strong></td>
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<td></td>
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<td>• Soil Profiles for High Traffic Turfgrass Areas</td>
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<td><strong>Video Lecture:</strong></td>
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<td>• Lecture 25</td>
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<td>8 – 14 Nov</td>
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<td>• Three Soil Profile Examples</td>
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<td>• Lectures 26 &amp; 27</td>
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<td>15 – 21 Nov</td>
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<td>• Soil Water Fate in Various Putting Greens</td>
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<td><strong>Video Lectures:</strong></td>
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<td>• Lectures 28 – 30</td>
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<td>14</td>
<td>22 – 4 Dec</td>
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<td></td>
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<td>• Putting Green Drainage</td>
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<td>• Lecture 31</td>
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<td>• Learning Activities Due, 11:59 pm, Sun Nov 22</td>
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<td>• Final Exam, Noon, Mon Dec 7 – 11:59 pm, Wed Dec 9</td>
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