- Syllabus –

Plant Pathology 5130 – Autumn Semester 2012
Turfgrass Diseases &
Integrated Turfgrass Health Management

Mr. Joseph W. Rimelspach & Mr. Todd E. Hicks
Department of Plant Pathology – the Ohio State University

Prerequisite: Plant Pathology 401/ PP3001 & PP3002 (General Plant Pathology) or equivalent

Meeting times: Wednesday and Fridays 12:45PM - 2:05PM.

Locations: - Kottman Hall 110 /or
- OTF Education & Research Facility (2710 North Star Road, 43221) /or
- Field trips

Office hours: Mr. Rimelspach
Office - Room 248B Kottman Hall
Email - rimelspach.1@osu.edu
Office hours: After class or by appointment.

Mr. Hicks
Office Room 110B Kottman Hall – “The Cave” or OTF Facility
Cell Phone 614-778-9172
Email – hicks.19@osu.edu


Additional Resources:

Printed Materials


**Computer-based Technology**

• Turfgrass Disease CD-Rom

• American Phytopathological Society’s URL - [http://www.apsnet.org](http://www.apsnet.org)

**Participation & Attendance:**
Since this a small class it would be to your benefit to be engaged and involved in class discussions, to ask questions and take advantage of learning opportunities in the class. If you are going to miss class contact Mr. Rimelspach prior to the class you will absentee.

**Evaluation:**
Letter grades will be assigned based on the accumulation of points earned during the quarter according to the following:

<table>
<thead>
<tr>
<th>Breakdown of Points</th>
<th>Points</th>
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<tbody>
<tr>
<td>Evaluations (Midterm &amp; Final /100 points each)</td>
<td>200</td>
</tr>
<tr>
<td>Quizzes</td>
<td>100</td>
</tr>
<tr>
<td>Fungicide labels *</td>
<td>50</td>
</tr>
<tr>
<td>Your - Turfgrass System Summary - paper</td>
<td>20</td>
</tr>
<tr>
<td>Disease Sheets (5) *</td>
<td>30</td>
</tr>
<tr>
<td>Home Work</td>
<td>100</td>
</tr>
<tr>
<td>Integrated Turf Disease Management (ITDM) Resource Manual: **</td>
<td>50</td>
</tr>
<tr>
<td>Attendance &amp; Participation</td>
<td>50</td>
</tr>
<tr>
<td>Turfgrass Management Recommendations for Mr. Landolfi</td>
<td>100</td>
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**Total Points** 700

* Include in the IDM Resource Manual
** The order & organization is listed below under, Integrated Disease Management (IDM) Resource Manuals:
<table>
<thead>
<tr>
<th>Grade</th>
<th>% or &gt;</th>
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<tbody>
<tr>
<td>A</td>
<td>92 %</td>
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<tr>
<td>A-</td>
<td>88 %</td>
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<tr>
<td>B+</td>
<td>86 %</td>
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<tr>
<td>B</td>
<td>82 %</td>
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<td>B-</td>
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<td>C+</td>
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<td>68 %</td>
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<td>D+</td>
<td>66 %</td>
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<tr>
<td>D</td>
<td>62 %</td>
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</table>

**Your - Turfgrass Career System Summary:** - A 1-page overview of the type of turfgrass system you plan on working in upon graduation. This does not have to be an extremely detailed overview here but rather your best idea of where it is you see yourself working in the future or desire to work.

The reason for this assignment is to help you focus more in depth on diseases you may encounter in your future career. As we talk through the various diseases - push yourself to think about the many complexities that will influence your particular system and how to manage these situations.

Items that are to be included in the paper are:
- The type of turfgrass facility you plan to work in.
- What species of grass(s) are you going to be managing?
- Think about the key factors you will be responsible for, such as: maintenance facilities, irrigation system/ water source, soil type, drainage, soil profiles, equipment, staff, budget, members / clients, turfgrass use, wear, etc.

**Fungicide Label Collection:** Starting on Friday September 21, running through the last week of class, each student will be required to bring in at least 2 turfgrass fungicide labels to the Friday class (except the week of Thanksgiving). Your labels will be checked at the beginning of each class.

These should be 3-hole punched and organized in your ITHM Resource Manual).

**Disease Sheets:** Identify the TOP 5 diseases you expect to encounter in your future work.
- For each disease, provide a timeline as to when you anticipate seeing each disease.
- Complete a disease sheet for each of these diseases. The expectation is that you will complete these sheets prior to class and then complete them as we cover them.
- Select, download and print two URL’s for each of these diseases that you feel do a good job highlighting each of these diseases for the area you plan to work.
- Be creative on the information you gather and present. The goal is – what will be the most helpful for you!
**Home Work Assignment(s):**
All late assignments will be penalized by 10% per day late.

**Integrated Turf Disease Management (ITDM) Resource Manuals:** The purpose of this assignment is for you to have a resource manual for turfgrass diseases and a resource to successfully manage turfgrass diseases upon graduation. The goal of this assignment is to help you transition from theory to practice – in other words, applying what you’ve learned.

**MANUAL ORGANIZATION – You have to be able to find information!**
Your resource manual should contain the following in a well organized format:
(Have tabs for each section.)

1. Table of content
2. Your career turfgrass system summary
3. Weather trends and information relating to the area you plan to work
4. Disease Sheets (5)
5. Fungicide labels
6. Information about disease, photos, identification aids for turf disease etc.
7. Other materials (You are encouraged to add additional information and resources.)
   - Application equipment
   - Diagnostic labs
   - Calculations & conversion factors
   - Suppliers & fungicide pricing etc…..

Many students have told us that this notebook has been a valuable tool after graduation!

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**Important Dates to Remember:**

**Fungicide Labels -- Due every Friday from Sept 21 – Nov 30**
Bring 2 turfgrass fungicide labels each Friday, there will be 10 weeks (no classes the week of Thanksgiving) so there will be a total of 20 labels. These will be included in your *Integrated Disease Management (IDM) Resource Manual.*

**Homework - due dates will be announced at the time of the assignment.**

**September 19 (Wednesday) – Your - Turfgrass Systems Summary**

**October 17 (Wednesday) – Midterm Evaluation**

**November 28 (Wednesday) - Integrated Disease Management (IDM) Resource Manual**
Returned to you on Nov 30 (Friday)

**December 7 - Final - Friday from 12:00 until 1:45 am / Kottman Hall 110**
Outline of Topics and (Reading Assignments)

- Welcome & Introductions / Course logistics and review of syllabus
- Review of General Plant Pathology
- Discussion about turfgrass systems and their complexity/ turf identification / etc…

Noninfectious Diseases and Disorders/ Problems
- Noninfectious diseases - Abiotic – *The environment and turfgrass health.* (11-16)
- Noninfectious diseases - Biotic – *The environment and turfgrass health.* (8-11) (125-126)
  - Algae / Black-Layer / Slime Layer / Moss / Slime Mold
- Discussion on why grass turns brown! (148-153)
- Diagnosing diseases & turf problems (148-153)

Infectious Diseases
- Revisiting ‘Disease Cycles’ - Infectious diseases
  - Viral diseases / Bacterial diseases / Rapid blight / and turfgrass diseases
- Integrated Turfgrass Disease Management (139-147), (L-187 1-3 & 7-8)

Fungicides – Modes of Action, Resistance & Use Strategies
- Fungicides and fungicide resistance etc…(142-146) (UK bulletin 1-7)
  The following areas will be covered in class – readings are in Dr. Rick Latin’s book which is on closed reserve in the Ag. Library - *(A Practical Guide to TURFGRASS FUNGICIDES, 2011)*
  - General Fungicide Fundamentals (chapter 1)
  - Modes of Actions of Fungicides (chapter 2)
  - Fungicide Resistance (chapter 3)
  - Factors Influencing Fungicide Performance (chapter 4)
  - Scheduling & Fungicide Programs (chapter 7)
  I will provide more detail of the key pages to read at the time we discuss these topics.

Infectious Diseases Caused by Fungi

- **Fungal Foliar diseases:**
  - Snow molds
    - Gray *Typhula* spp. (50-53)
    - Pink snow mold / *Microdochium* patch (47-49)
  - *Ascochyta* leaf blight (17-18) *Leptosphaerulina* leaf blight (31- 33)
  - Copper spot (21)
  - Dollar spot (22-24)
  - Gray leaf spot (24-28)
  - Leaf smuts (28-31)
  - Red thread (38-40)
- Pink patch and Cream leaf blight (34-35)
- Leaf rusts (40-44)
- Powdery mildew (35-36)

- **Fungal Foliage and/or Roots disease:**
  - Anthracnose (56-59)
  - Leaf spots and melting out (59-68)
  - *Rhizoctonia* diseases (78-85)

- **Fungal Root diseases:**
  - Bentgrass dead spot (89-91)
  - Necrotic ring spot (91-94)
  - Summer patch (99-102)
  - Take-all patch (102-105)
  - Spring dead spot (97-99)
  - Root decline of warm-season grasses

**Infectious Diseases Caused by Oomycetes**
- **Oomycete diseases:**
  - Pythium foliar blight (71-77)
  - Yellow tuft / Downy mildew (54-56)
  - *Pythium* root rots (71-11)
  - Pythium root dysfunction

**Other Diseases and Disorders Caused by Pathogens**
- Nematode diseases (117-122)
- Bacterial Wilt (106-109)
- Fairy ring (110-114)
  - Superficial fairy ring (114-115)
  - Yellow ring (115-116)
- Minor miscellanies diseases
- Seedling diseases (85-86)
- Warm season grass diseases

**Lab Projects, Research & Field Visits**
- Research plot design and layout / OTF Education & Research Facility
- Research study applications / OTF Education & Research Facility
- Research project at OSU Golf Club
- Sprayer calibration and demonstration
- Handling and use of fungicides

Additional reading assignments and handouts may be given.
ACADEMIC INTEGRITY (ACADEMIC MISCONDUCT)

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 we suspect that a student has committed academic misconduct in this course, we are obligated by University Rules to report our 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 us.

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

- The Committee on Academic Misconduct web pages (oaa.osu.edu/coam/home.html)
- Ten Suggestions for Preserving Academic Integrity (oaa.osu.edu/coam/ten-suggestions.html)
- Eight Cardinal Rules of Academic Integrity (www.northwestern.edu/uacc/8cards.html)

Students with disabilities:

If you have a special need based on a disability, please contact Jim, Sarah, or Angela so we can discuss your particular situation. We will work with you on a case-by-case basis to accommodate your special needs in a discrete fashion, but we need to know about them before we can be sensitive to them. If you require additional assistance, contact the Office for Disability Services at 614-292-3307 in 150 Pomerene Hall or at http://www.ods.ohio-state.edu