

# Department of Plant Sciences

## Graduate Student Handbook

This handbook describes our department, how it can help you succeed and its expectations of you as a graduate student. We have included links to The University of Tennessee Graduate School's handbook, as well as information about various university services, publications, fees, helpful offices & phone numbers that recent graduates have indicated were helpful. Please feel free to consult any of us if you have questions or suggestions.

### **Plant Sciences Graduate Committee:**

Bill Klingeman, PS Graduate Director  
Dennis Deyton  
Sue Hamilton  
Chris Main  
Vince Pantalone  
Neal Stewart

See below for *the small print*:

***Please note:** Adoption and accuracy of these drafted Departmental policies, procedures and curriculum, as outlined in this handbook, are subject to pending and final approvals by CASNR, UT Graduate School and UT Faculty Senate committees. As such, terms of this handbook are subject to change. Contact the PS Graduate Director if you have questions.*

The University of Tennessee does not discriminate on the basis of race, sex, color, religion, national origin, age, disability or veteran status in provision of educational programs and services or employment opportunities and benefits. This policy extends to both employment by and admission to the University.

The University does not discriminate on the basis of race, sex or disability in its education programs and activities pursuant to the requirements of Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act (ADA) of 1990.

Inquiries and charges of violation concerning Title VI, Title IX, Section 504, ADA or the Age Discrimination in Employment Act (ADEA) or any of the other above referenced policies should be directed to the Office of Equity and Diversity (OED), 2110 Terrace Avenue, Knoxville, TN 37996-3560, telephone 865.974.2498 (V/TTY available) or 974.2440. Requests for accommodation of a disability should be directed to the ADA Coordinator at the UT Office of Human Resources, 600 Henley Street, Knoxville, TN 37996-4125.

## **CONTACTS**

Students are referred to the UT website (<http://www.utk.edu/>) for the most up-to-date listings of phone numbers and e-mail addresses.

### **The University of Tennessee**

Knoxville, TN 37996-0220

Office Hours: 8:00 a.m. - 5:00 p.m. M – F

General Information: 865.974.1000 Voice/TTD 865.974.6087; FAX 865.974.0088

URL: [://www.utk.edu/](http://www.utk.edu/)

### **Disability Student Services**

Counseling Service

191A Hoskins Library

865.974.6087; FAX 865.974.0088

### **Graduate Admissions and Records**

Office of Graduate Admissions and Records

218 Student Services Building

865.974.3251; fax: 865.974.6541

### **Center for International Education**

Director

1620 Melrose Avenue

865.974.3177; fax 865.974.2985

### **Registrar**

209 Student Services Building

865.974.2101

### **University Evening School**

Director

451 Communications Building

865.974.5361; fax 865.974.2027

### **Transcripts**

209 Student Services Building

865.974.2101

### **Veteran's Benefits**

209 Student Services Building

865.974.1507

### **Financial Assistance**

*Assistantships:* Head of applicable department or program

*Fellowships and Scholarships:* Staff Assistant, Office of Graduate Admissions and Records

*Loans, Work-Study:* Director of Scholarship & Financial Aid, 115 Student Services Building 865.974.3131; fax: 865.974.2175

### **Housing**

*Student Apartments:*

Office of Rental Properties, 107 S. Stadium Hall

865.974.3431; fax: 865.974.0078

*Residence Halls (Dormitories):*

Office of Residence Halls, 405 Student Services Building; 865.974.3411

Married Student Housing, 405 Student Services Building; 865.974.3411

Off-Campus Housing, 405 Student Services Building; 865.974.2571

## TABLE OF CONTENTS

### I. AN OVERVIEW OF OUR PROGRAM (for *Prospective students*)

Welcome to the Program .....	5
Introduction & description.....	6
Summary of Plant Sciences degrees & programs.....	6
Plant Sciences Master's Program.....	7
Concept of the Plant Sciences (PS) Master of Science degree.....	7
M.S. thesis option.....	7
M.S. non-thesis option .....	7
Admission requirements to M.S. program.....	8
M.S. degree requirements .....	8
M.S. thesis option .....	9
M.S. non-thesis option .....	9
The Plant, Soils & Insects (P.S.I.) Doctoral Program.....	10
Admission requirements to Ph.D. program .....	10
P.S.I. degree requirements.....	10-11
Graduate school deadlines .....	12
Graduate school forms.....	12
Office hours, holidays & vacations .....	12
Courses offered by the Department of Plant Sciences .....	13-17
Additional courses accepted for Plant Sciences degree credit.....	18-20
Tuition, financial aid & fees .....	21-23
Assistantships.....	21
UT Graduate Student Assistantship Handbook online.....	21
Graduate Research Assistants (GRA).....	21-22
Graduate Teaching Assistants (GTA).....	22
Non-assistantship students .....	22
Fellowships.....	22
Scholarships, loans, financial aid & fees .....	23
Tuition exemptions.....	23
Employment .....	23
Work-study & hourly work .....	23
On & off campus work for spouses .....	23
Fees for University courses & services .....	23-24
Graduate student health insurance .....	24

### II. WELCOME ABOARD (for *Enrolled students*)

Steps to M.S. & Ph.D. degrees.....	25-34
1. Assignment of a faculty advisor (major professor).....	25
2. Graduate advisory committees .....	25
Master's advisory committee .....	25-26
PhD advisory committee .....	26
3. Proposed program of study .....	26
4. Research proposal.....	26-27
5. Reasonable term of study & time limits for graduate degrees.....	27
6. Participation in research projects .....	27-28
7. Evaluation of student progress .....	28
8. Professional meetings & travel support .....	28-30
9. Preparation of manuscript(s).....	30
10. Preparation of grant(s) .....	30

11. Graduate student teaching policy .....	31
12. Seminar requirements for graduate degrees .....	31-32
13. Statistical aptitude & use of departmental computers .....	32
14. Comprehensive preliminary examinations for doctoral students .....	32-33
Format of the exam.....	33
In the event of failure of exam(s) .....	33
Appeals process .....	33
15. Distribution of a final draft of the report, thesis or dissertation to the committee & scheduling oral exams.....	34
16. Checklist for leaving the department & university .....	34
Brief words about Academic Honesty & Student Conduct .....	35-36
Alcoholic beverage & illegal drug policies .....	35
Plant Sciences Departmental Facilities & Resources .....	37-41
Overview.....	37
Faculty, staff & technical personnel in Plant Sciences .....	37
Office & desk assignments.....	37
"Author Room" resources .....	37
Department & University vehicle use .....	37-38
What to do in a vehicle-related emergency.....	38
RIGHT-TO-KNOW program .....	38-39
Accident and incident reporting .....	39
Official University travel.....	39-40
Out-of-state travel .....	40
Avenues of communication .....	40
Grounds for withdrawing financial support .....	41
Departmental grievance procedure .....	41
Other resources for resolution of student problems.....	41-42
Ag Campus & University Facilities & Resources .....	43-45
UT VolCard (Student ID card) .....	43
Parking on campus.....	43
On campus & local bus service .....	43
Library facilities.....	43
Software access & IT services .....	43
Statistical consulting center.....	44
Thesis writing workshops.....	44
University housing.....	44
Keys to University facilities.....	45
Campus police .....	45
UT Intercollegiate athletics & student organizations .....	45
Local & Regional Activities.....	46
Appendices .....	47-50
A. Student progress evaluation form .....	47-49
B. Plant Sciences Graduate Student Award Incentive Program .....	50

## Welcome to the Department of Plant Sciences

Welcome to the Department of Plant Sciences! We are very happy that you have chosen to pursue an advanced degree with us and we look forward to working with you over the next few years. I am confident that most of you will be able to look back on this experience as one of the more enjoyable and exciting times of your life. You are making the transition from student to professional, and you will be conducting independent research; research of which you will be proud. Do your best in your coursework and your research project, but don't miss out on enjoying the friendship of your fellow graduate students, in this department as well as others. It is true in my case, and I am quite sure that the faculty in our department will agree...some of the best friends you will cultivate in life are fellow graduate students.

This handbook is intended to serve as a resource for information regarding policies and procedures in the Plant Sciences graduate program. We would encourage you to read it thoroughly at your first opportunity. It is not intended to be a complete, all-inclusive guide. New questions and issues arise on an almost daily basis. But we have attempted to put in this book some of the more pertinent policies and procedures regarding your graduate program experience and believe that it will be a useful resource.

Please do not hesitate to contact your advisor, a faculty member (particularly those who are members of your committee), our Graduate Director Dr. Bill Klingeman, or me if you have any questions, need guidance, or have suggestions. We welcome input on ways to strengthen this experience for future students. I have an open door policy. My office is in Room 258 Ellington Plant Sciences Building.

Again, welcome to the department! We are glad you are here. Make the most of your experience, and do not hesitate to call on our faculty, staff or me for assistance.

Sincerely,

*Dr. 'Robert Augé*

Dr. Robert 'Oz' Augé, Interim Department Head

# Chapter I

## AN OVERVIEW OF OUR PROGRAM

### 1. Introduction & description

The Department of Plant Sciences is part of The University of Tennessee, Institute of Agriculture. The faculty and staff in the department have appointments in the College of Agricultural Sciences and Natural Resources (CASNR), Tennessee Agricultural Experiment Station (TAES), and University of Tennessee Extension.

The Department of Plant Sciences provides educational and research opportunities in the areas of plant science, from molecular to systems levels, dealing with improvement, growth, and management of food, fiber, turf and ornamental crops, and the practice of public horticulture. Our department offers courses which apply to public horticulture, breeding, genetics, growth, physiology, and management of these plants, leading to their efficient production and use under different environmental and management situations.

Excellent laboratory and field resources are available for education, research and teaching in Knoxville and other locations across Tennessee. The addition of the Plant Biotechnology building in 2003 provided the Department with excellent laboratory space and facilities for all types of plant science research. Plans are underway for a major renovation and expansion of greenhouse research capability which, when completed, will allow expanded research, outreach and teaching activities. The UT Gardens provides excellent training, education and research opportunities for students interested in public horticulture.

***Please be aware:** You, not your major professor or departmental staff, are responsible for the success of your graduate program. It is your responsibility to be aware of University and Department of Plant Sciences al rules and regulations. You must follow these rules and stay on top of University, Graduate School, and Plant Sciences Departmental deadlines to graduate.*

### Summary of Plant Sciences degrees & programs

College of Agricultural Sciences and Natural Resources (CASNR)

<u>MAJORS</u>	<u>DEGREES</u>
Plant Sciences	M.S.
Plants, Soils & Insects	Ph.D.

For information about the **College of Architecture and Design** and **College of Agricultural Sciences and Natural Resources (CASNR)** joint **Masters of Landscape Architecture (MLA, MALA and MSLA)** degrees, visit pages 51-55 and 243-244 of the Online Graduate Catalog:

<http://catalog.utk.edu/index.php?catoid=2>

Two graduate degrees are offered by the Department of Plant Sciences: the Master of Science with a major in Plant Sciences, and the Doctor of Philosophy with a major in Plants, Soils & Insects (PSI). For additional information, please visit our

departmental homepage at <http://plantsciences.utk.edu> and individual faculty pages at <http://plantsciences.utk.edu/faculty.htm>.

Inquiries may be directed to Dr. Bill Klingeman, Graduate Committee Chair, Department of Plant Sciences, The University of Tennessee, Knoxville, TN 37996.

## **PLANT SCIENCES MASTER'S PROGRAM**

Both *thesis* and *non-thesis* options are available for the major in Plant Sciences, each guided by a graduate advisory committee consisting of the major professor and two or more other faculty members. Studies are possible in a wide variety of commodities and subject areas, including biotechnology, cereals, ecology, fiber crops, fruits, genomics, grains, legumes, molecular biology, physiology, plant breeding, plant protection, tobacco, turfgrass, vegetables, weeds and woody ornamentals (including native plants), as well as public horticulture.

### **Concept of the Plant Sciences (PS) Master of Science degree**

#### **M.S. thesis option**

The purpose of the thesis option is to develop the capacity to perform quality research in the student's field of interest. The M.S. degree program in PS emphasizes active communication of ideas, rather than passive acquisition of information. Students are asked to perceive a problem of current importance to science, the public, or industry; to organize information and the experimental facilities needed to conduct sound science while investigating the problem. Finally students are expected to write and defend a formal document, or thesis, which describes the steps in the problem-solving process, justifies the validity of the approach and discusses results. Thus, the thesis is the primary device for conducting the M.S. training program, and a course of study is individually tailored to support each thesis project. PS theses often involve both fundamental principles and practical applications of knowledge, oriented toward the culture, ecology, physiology or molecular genetics of one or more appropriate model plant species. PS theses in public horticulture may include historic landscape preservation, education and outreach, and horticultural therapy in studies integrating research with information sciences and communication to public audiences. Successful M.S. candidates are encouraged to present their results and conclusions at meetings of professional societies and to publish their work in professional journals.

#### **M.S. non-thesis option**

Plant Sciences M.S. graduate students typically undertake the responsibility and experience of preparing a M.S. thesis. Under certain circumstances, however, M.S. students may pursue a non-thesis option in Plant Sciences. Students in the non-thesis program conduct graduate projects with varying degrees of sophistication, to enable them to practice skills and concepts learned in their coursework. The research or design project serves to unify the non-thesis program and fashion it according to the student's specific personal objectives. Students electing this option take more classes than M.S. thesis students and are required to write and submit a report on their project, as well as attend and present seminars. Contact the graduate coordinator to discuss the M.S. non-thesis option and possible limitations of this degree.

## Admission requirements to M.S. program

Students should have a Bachelor's degree from an accredited college or university, with evidence of ability to do work of graduate quality. Applicants are expected to have a minimum cumulative grade-point average of 2.7 on a 4.0 scale.

Application can be made online at <https://www.applyweb.com/apply/utg/> for a \$35 application fee (payment made to *The University of Tennessee*). Please note that portions of the application process are sent to both the Office of Graduate and International Admissions and the Department of Plant Sciences. Transcripts and the application fee should be sent to the Office of Graduate and International Admissions. The Department of Plant Sciences application requires three letters of reference (or three Graduate Rating Forms) from persons capable of assessing the applicant's suitability for graduate work in plant science, resumé, and statement of professional goals and reasons for applying to the program. Applicants are also required to submit scores from the general Graduate Record Examination (GRE) to Graduate Admissions (please send photocopy to department). The institutional code for UT is 1843. Successful applicants will usually score above the 50<sup>th</sup> percentile on the verbal, mathematical and analytical sections of the GRE. Prior undergraduate course work in biology, chemistry, and mathematics is recommended.

## M.S. degree requirements

*[Please see the Degree Program Requirements/Master's Degrees section in the Graduate Catalog for more specific information.]*

1. Approval of the academic program by the master's advisory committee.
2. Successful completion of 12 hours of coursework in the major at the graduate level (400 or above), exclusive of PLSC 500, 502, and 503.
  - Two (2) of these hours must be PLSC 505 and 504.
  - *With approval of the student's advisory committee*, six (6) of these hours may be satisfied by the following courses, which accommodate particular academic objectives but are not available within the PS department (see pp. 18-19 for individual course descriptions):
    - Art 481
    - Biochemistry, Cellular & Molecular Biology 404, 522, 523
    - Ecology and Evolutionary Biology 433, 560
    - Environmental and Soil Sciences 434, 516, 544
    - Geography 439
    - Information Sciences 560
    - Cultural Studies in Education 560
    - Environmental and Soil Sciences 511
    - Sociology 633
3. Presentation of at least one departmental seminar.
  - Students must enroll for *at least* 3 credit hours of PLSC 500 during the semester in which you intend to graduate.

**M.S. thesis option:**

1. Satisfactory preparation of a written thesis proposal and its oral defense to the student's committee.
2. Successful completion of 30 hours of graduate credit, which must include 6 hours of 500.
  - At least 14 of these hours must be numbered 501 or above.
3. Completion of the final written thesis and its oral defense

**M.S. non-thesis option:**

1. Successful completion of 34 hours of graduate credit, which must include 2-4 hours of PLSC 503.
  - At least 22 of these hours must be at the 500-level or above.
2. Completion of a project & preparation of a summary written report.
3. Passing written and oral examinations covering the project & coursework.

Forms available through the Graduate School include admissions to candidacy for the M.S. and Ph.D. degrees (<http://web.utk.edu/~gsinfo/acforms.shtml>).

## THE PLANTS, SOILS & INSECTS (P.S.I.) DOCTORAL PROGRAM

A Ph.D. in Plants, Soils & Insects (PSI), with *concentrations* in crop sciences, horticulture, plant breeding, plant molecular genetics, and weed science, is offered under a multi-departmental doctoral program in the College of Agricultural Sciences and Natural Resources. Three departments participate: **Plant Sciences**, **Entomology & Plant Pathology**, and the soil sciences faculty in **Biosystems Engineering & Soil Sciences**. Other concentrations within the PSI major include environmental and soil sciences, entomology, plant pathology, integrated pest management and bioactive natural products. Please see the Plant Sciences homepage for additional information, <http://plantsciences.utk.edu>, or contact a faculty member in the area of interest.

### Admission requirements to Ph.D. program

Submit application, fee, official transcripts, and scores from the general portion of the Graduate Record Examination to the Graduate Admissions Office (see admission requirements for the Master's Degree). In your application, specify that you are applying to the Plants, Soils & Insects doctoral program and indicate the concentration that best suits your field of academic interest. Submit résumé, three (3) letters of reference (or three (3) Graduate Rating Forms), photocopy of GRE scores and a short statement of professional goals and reasons for applying to: **Plant Sciences PhD Program Coordinator, Department of Plant Sciences, 2431 Joe Johnson Drive, 252 PSB, University of Tennessee, Knoxville, TN, 37996.**

In your statement letter and application, please indicate your concentration of interest and intended major professor.

### P.S.I. degree requirements

To obtain a PSI doctoral degree, students must meet the following requirements:

1. The student and the major professor will select a minimum of three additional faculty members, holding the rank of assistant professor or above, to serve on the student's doctoral advisory committee.
  - i. The major professor and two committee members must be approved to direct doctoral research by the Graduate Council.
    1. Policies established by the Department of Plant Sciences require that untenured, tenure track faculty have served as advisors to 2 M.S. students prior to directing a student's dissertation as the major professors.
    2. Untenured, tenure track faculty can serve as co-advisors on student dissertation projects until the M.S. advisory criterion is met.
  - ii. At least one member of the committee must be from outside the department.
  - iii. The doctoral committee must be formalized by the end of the second semester of graduate study.

2. Submission of an approved program of study must be completed by the end of the second semester of graduate study.
  - i. A candidate for the doctoral degree must complete a minimum of 24 hours of graduate coursework beyond the master's degree.
  - ii. Candidates not having a master's degree must complete a minimum of 48 hours of graduate coursework beyond the B.S. or B.A. degree.
    1. A minimum of 12 of the 24 hours, or 30 of the 48 hours, must be graded A-F.
    2. At least 9 hours of the student's coursework must be from outside the PSI concentration area, and a minimum of 6 semester hours must be taken in UT courses numbered 601 or higher, excluding PSLC 602.
    3. In addition, 24 hours of course 600 Doctoral Research and Dissertation are required. Once a student initiates enrollment in PLSC 600, 3 credit hours per semester *must be continued* each subsequent semester, including the summer session.
    4. Doctoral students must enroll for *at least 3 credit hours* of PLSC 600 during the semester in which you intend to graduate.
  - iii. The student's graduate advisory committee must approve the curriculum of study.
3. Satisfactory preparation of a written dissertation proposal, a proposal seminar, and its oral defense to the student's committee. This must be completed during the first two semesters of graduate study and *before* enrollment in 600.
4. Passing both written & oral sections of the comprehensive preliminary exam.
  - i. The candidate will be tested on his/her knowledge of the proposed dissertation and related fields.
  - ii. Students may have no more than two attempts at passing comprehensive exams.
  - iii. Enrollment in 3 hours of PLSC 504. Presentation of at least two departmental seminars, in addition to an exit seminar (no credit).
    1. Seminars typically consist of the research proposal seminar and a "subject" seminar topic agreed upon between student, major professor, and departmental seminar coordinator.
5. Satisfactory preparation of a written dissertation and its oral defense to the student's doctoral committee. The dissertation may consist of a series of published manuscripts in lieu of a traditional dissertation.

*[Please see the Degree Program Requirements/Doctoral Degrees section at the front of the graduate catalog for additional information.]*

Forms available through the Graduate School include admissions to candidacy for the M.S. and Ph.D. degrees (<http://web.utk.edu/~gsinfo/acforms.shtml>).

### **Graduate school deadlines**

Deadlines of the Graduate School are given in the Graduate Catalog, and on the following web page: <http://gradschool.utk.edu/ddategraduation.shtml>. The University **Academic Calendar** is online at: [http://registrar.tennessee.edu/academic\\_calendar/](http://registrar.tennessee.edu/academic_calendar/)

Masters degree candidates must submit the **Admission to Candidacy** form to the Graduate School prior to the semester in which they plan to graduate. Admission to candidacy for the doctoral degree must be applied for and approved at least one semester prior to the date the degree is to be conferred. All forms are now available online (*see below*).

Graduate students are responsible for meeting the requirements established for the M.S. and Ph.D. degree programs that are *in effect at the time that the graduate student successfully achieves candidacy* for the degree they are pursuing.

***Your major professor is not responsible for informing you of these dates. You must be aware of them and plan your schedule accordingly.***

### **Graduate school forms**

Available online at: <http://gradschool.utk.edu/gradforms.shtml>

### **Office hours, holidays & vacations**

Students on assistantships observe office hours (8:00 a.m. to 5:00 p.m. Monday through Friday) established by the Institute of Agriculture, with exception for class attendance and pursuit of scholarly activities. Students not employed by the University should make their schedule known to the major professor and be available for cooperative work on research projects. Holidays are established and published annually by University administration. Students observe the same holidays as other University personnel.

As part-time employees, students are not eligible for benefits such as accrual of annual vacation and sick leave. Graduate students should schedule anticipated absences with their major professor to ensure that this will not conflict with their research activities.

Students entering a graduate program should realize that there might be occasions when extended working hours will be required for completion of academic and research responsibilities. Research preparation and data collection may require extended hours during the week, some weekends, and occasional holidays during periods of greatest activity.

## GRADUATE COURSES\* OFFERED BY THE DEPARTMENT OF PLANT SCIENCES

A complete list of courses available for graduate credit in the Department of Plant Sciences can be found at the following web site in pdf format. Scroll down to Plant Sciences, or use the search function to find Plant Sciences courses.

<http://diglib.lib.utk.edu/dlc/catalog>

**\* 400-level courses cannot be counted toward course requirements available to PhD candidates. Contact the listed faculty or instructor to discuss alternatives that might enable consideration of course content.**

### **400-Level Courses\***:

- 410 Nursery Management and Production (3)** Management methods as applied to retail and wholesale nurseries and landscape contracting firms. Methods of producing liners, container and field-grown woody ornamental plants. *Contact Hour Distribution: 3 hours lecture. Sp, alternate years (odd numbered)*
- 421 Native Plants in the Landscape (3).** Native plants and plant communities as a basis for landscaping and environmental restoration. Weekly lecture coupled with either an outing or service practicum of invasive exotic plant removals or planting of natives. Study and work sites will primarily be demonstration projects of the University of Tennessee Environmental Landscape Design Lab. They include local schoolyard habitats, greenways, wetlands, streambanks, and shorelines. *Recommended Background: 220 or Ecology and Evolutionary Biology 330. Fa, Sp*
- 427 Management and Administration of Public Horticulture Institutions (2)** Management of resources in non-profit institutions, support organizations and communities. Theoretical framework and institutional mission; strategic planning and programming; financial accounting and budgeting; development and fund raising; personnel policies; volunteer development; marketing and publicity; legal issues; relationships between staff and governing boards; the use of information technology in management and governance systems; and conservation/preservation roles in community development. *Fa, as needed*
- 429 Field Study of Public Horticulture Institutions (2)** Extended 10-12 day field study of various public horticulture institutions such as botanical gardens, arboreta, historical grounds, zoos, conservatories, cemeteries, and nature preserves. *Application and travel fee required. Su*
- 430 Greenhouse Management (3).** Principles of greenhouse operation and management for commercial crop production. Greenhouse construction and operation, crop scheduling and cost accounting. Environmental inputs and cultural practices as they affect plant physiological processes and influence plant growth and development. *2 hours lecture and one 2-hour lab. Sp, alternate years (even numbered)*
- 434 Fruit and Vegetable Crops (3)** Botanical description, geographical distribution, general cultural practices of warm and cool season vegetables, small fruits, and

deciduous tree fruits. A Saturday field trip is required. *Contact Hour Distribution: 2 hours lecture and one 2-hour lab. Fa*

- 435 Field and Forage Crops (2)** Agronomic principles of crop production and management. Crop improvement, cropping systems, tillage, fertilization, pest management, harvest and utilization of major field and forage crops. *Contact Hour Distribution: 2 hours. Fa, alternate years (odd numbered)*
- 436 Plant and Garden Photography (3)** Principles and techniques of photography as they relate to plants and gardens. Study of equipment options and field shooting under various weather conditions and in different seasons. *Registration Permission: Consent of instructor. Sp, alternate years (even numbered)*
- 437 Public Garden Operations and Management (2)** Analysis of year-round operations and management of public gardens. Case studies involving time and labor management, budget development and management, implementation of volunteer programs, information dissemination methods for public outreach, management of grounds and facilities using the University of Tennessee Institute of Agriculture Gardens as a model. *Sp*
- 442 Turf Root-zone Construction (2)** Construction and management of root-zones for home lawns, golf courses and athletic fields. *Sp*
- 450 Specialty Landscape Construction (3)** Methods of design, materials, and construction techniques for specialized components of the landscape industry. Irrigation systems, outdoor lighting, garden ponds and water features. *Fa*
- 451 Plant Tissue Culture (3)** (See *Entomology and Plant Pathology 451.*) *Fa, alternate years (odd numbered)*
- 457 Weed Management (3)** Principles of weed interference, integrated management, herbicide selectivity and behavior, specific recommendations for various crop and non-crop situations. *Fa*
- 470 Professional Practices for the Green Industry (3)** Professionalism, sales, sales proposals, budgeting, managerial skills, estimating, specifications, and contract management in the turf, public horticulture and landscaping professions. *Registration Restriction(s): Minimum student level – senior. Sp*
- 475 Professional Issues in Bioenergy (3)** Study and discussion of professional issues and practices in the bioenergy field, including economics, policy, engineering, processing, agronomy, biotechnology. *TBA*
- 480 Advanced Landscape Design (4)** Comprehensive application of landscape design skills to a variety of project experiences with an emphasis on landscape planning and analysis, planting design, and materials estimating. *Contact Hour Distribution: Two 3-hour labs. Fa, Sp*
- 485 Computer Aided Landscape Design (3)** Overview of Computer Aided Design (CAD) as it relates to landscape design and construction. Emphasis on development of landscape design drawings through utilization of LANDCADD software. *Contact Hour Distribution: Two 3-hour labs. Fa, Sp*
- 494 Professional Horticultural Communications (3)** Communication for public horticulturists through written, oral and visual media. Emphasis on communication skills using proper writing techniques and grammar for print media, brochure design

using desktop publishing, slide show development, oral presentations, and video use for educational and informational presentations in ornamental horticulture. *Sp*

### **500-Level Courses:**

**500 Thesis (1-15)** *Grading Restriction: P/NP only. Repeatability: May be repeated.*

**501 Special Topics in Plant Sciences (1-3)** Topics to be assigned. *Repeatability: May be repeated. Maximum 6 hours. Registration Permission: Consent of instructor.*

**502 Registration for Use of Facilities (1-15)** Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed. *Grading Restriction: Satisfactory/No Credit grading only. Repeatability: May be repeated. Credit Restriction: May not be used toward degree requirements.*

**503 Non-Thesis Project (1-2)** Library, field, or laboratory project under supervision of faculty member. *Repeatability: May be repeated. Maximum 4 hours. Comment(s): For students in non-thesis option only.*

**504 Seminar (1)** Presentations and discussion of topics. *Repeatability: May be repeated. Maximum 2 hours.*

**505 Professional Development and Presentation Skills (1)** Introduction to style, content and format guidelines for preparing formal presentations to scientific and professional peers. Preparation of abstracts and discussion of strategies and opportunities leading to development of young academic professional acumen. *Fall. Taken the first semester offered after beginning MS (or PhD) studies in Plant Sciences. Fa*

**507 Professional Development Seminar (1)** *(See Agriculture and Natural Resources 507.) as needed*

**511 Seed Biology and Physiology (1)** Discussion and readings related to the seed as a biological system: its formation, development, dormancy, germination and viability. *Sp, alternate years (even numbered).*

**513 Fungal Epidemiology and Disease Control (2)** *(See Entomology and Plant Pathology 513.)*

**525 Research Ethics in the Life Sciences (1)** How good research conduct and knowing the rules of science can enable success in life science research. Bioethics is not a focus. *(Same as Animal Sciences 525) Fa*

**530 Integrated Pest Management (3)** *(See Entomology & Plant Pathology 530.) Fa*

**532 Environmental Plant Ecophysiology (3)**. Physiological and ecological principles of plants and the relation of those principles to plant responses to the environment. Water relations, gas exchange, stress physiology, seed biology, plant competition, plant defense. *Recommended background: Plant physiology course. Fa, alternate years (even numbered)*

**536 Ecology of Grazing Land Systems (3)** Multi-university, field-oriented course. Components and functions of grazing lands and how these vary in different ecoregions; research needs, objectives and techniques in soil-plant-animal research; forage-livestock ecology and systems in grazing lands (cropland, pastureland, rangeland and forestland); role of forages in conservation practices, wildlife habitats,

and sustainable agriculture; and industries involved with forages and livestock. Requires two-week field trip, inclusive report, and examination. *Registration Permission: Consent of instructor. (Same as Animal Science 536.) Su, alternate years (odd numbered)*

**537 Plant Nutrition (3)** Effect of plant nutrition on biochemical and physiological processes in plants. *TBA*

**541 Advanced Turfgrass Management (3)** Principles and scientific basis of turfgrass culture; adaptation, ecology, physiology, climatic influences on grass culture; clipping and water management; design. *Contact Hour Distribution: 3-hour lecture and one 1-hour lab. Sp*

**544 Protein Gel Electrophoresis (1)** *(See Entomology and Plant Pathology 544.)*

**545 Plant Microtechnique (1)** *(See Entomology and Plant Pathology 545.) Sp, alternate years (odd numbered)*

**553 Plant Biotechnology, Genetics and Breeding (3)**. General principles and techniques used in plant modification. Principles of molecular and transmission genetics as applied to plant biotechnology and plant improvement. *Credit Restriction: Students may not receive credit for both 453 and 553. Sp*

**554 Plant Biotechniques (3)** Lectures will discuss recombinant DNA technology, molecular assisted breeding of economically important crops, gene cloning and transformation technologies. Examples will be given of food and ornamental crops, pharmaceuticals, and renewable energy sources produced using biotechnology as well as potential risks of this technology. Labs will include electrophoresis, tissue culture, plasmid preps, genomic DNA preps, PCR, plant transformation, genomic techniques. *Contact Hour Distribution: 1-hour lecture and one 3-hour lab. Credit Restriction: Students may not receive credit for both 454 and 554. Fa*

**561 Statistics for Biological Research (3)** Application of statistics to interpretation of biological research. Notation, descriptive statistics, probability, distributions, confidence intervals, t- and chi-square tests, analysis of variance, mean separation procedures, linear regression and correlation. *Credit Restriction: Students may not receive credit for both 561 and 461. Fa*

**569 Teaching Practicum (1-3)**. Supervised experience in teaching. May involve preparation of lectures and teaching aids, preparation and supervision of laboratory exercises, evaluation of student performance, and for second year graduate students, responsibility for course delivery. Repeatability: May be repeated. Maximum 3 hours. *Registration permission: Consent of instructor.*

**571 Design and Analysis of Biological Research (3)** *(See Animal Science 571.) Sp*

**592 Internship (1-2)** Application of horticulture and design principles and practices in supervised, professional setting, approved by department. *Grading Restriction: Satisfactory/No Credit or letter grade.*

**593 Problems in Plant Sciences (1-3)** Independent study. Current topic related to technology, science or design. *Repeatability: May be repeated. Maximum 6 hours.*

### **600-Level Courses:**

- 600 Doctoral Research and Dissertation (3-15)** *Grading Restriction: P/NP only. Repeatability: May be repeated.*
- 602 Research Preparation (1-9)** *Grading Restriction: P/NP only. Repeatability: May be repeated. Maximum 9 hours.*
- 603 Special Topics in Crop Physiology and Ecology (1-3)** Microclimatology of agroecosystems, crop dormancy and responses to stress, physiology of crop growth and reproduction. Interactions of physiology and germplasm in crop production, theory and application of quantitative methods in crop physiology and ecology research. *Repeatability: May be repeated. Maximum 6 hours.*
- 605 Special Topics in Plant Breeding and Genetics (1-3)** Genotype by environment interactions, estimation of quantitative parameters, mutations, chromosome dynamics, polyploidy, genetic engineering, interspecific hybridization, linkage, screening methods, genome organization. *Repeatability: May be repeated. Maximum 6 hours. Sp, as needed*
- 610 Advanced Plant Genomics (2)** Journal club format emphasizing active class participation as a mechanism to explore the field of Plant Genomics. Each student will be required to lead the exploration of specific topics and will present a combination of three lectures and/or journal club discussions on the assigned topic. *Contact Hour Distribution: 2 hours. Sp*
- 634 Advanced Weed Science Principles (3)** Principles of Weed Science with emphasis on herbicide chemistry, herbicide effects on plant physiology, the analysis of herbicide residues in soils and plants, weed biology, and methods to conduct research under field, greenhouse and laboratory conditions. Offered in fall, alternate (even) years. *Recommended background: BCMB 522 or 523 and an organic chemistry or biochemistry course or consent of instructor. Contact Hour Distribution: 3 hours lecture. Fa*
- 643 DNA Analysis (2)** *(See Entomology and Plant Pathology 643.) Sp*
- 653 Advanced Plant Breeding (3)** Principles and methodologies targeting genetic gain for crop improvement. Concepts of qualitative and quantitative trait improvement. parental germplasm, hybridization, population formation, inbreeding, genetic variance, heritability, selection methods, molecular genetic markers, genetically engineered crops. *Recommended background: 571 & a general genetics course or consent of instructor. Sp, alternate years (odd numbered)*

Several courses offered outside the Department of Plant Sciences include instructional elements that are particularly relevant in several diverse fields related to Plant Sciences. With approval of your graduate advisory committee, courses that may be taken for credit in the PS MS and PhD programs currently include:

**Art:**

**481 Museum Studies I: Museums, Purpose and Function (3).** Development of museums of art, history, natural and applied science. (Same as Anthropology 481.)

**Biochemistry and Cellular and Molecular Biology:**

**404 Plant Molecular Biology (4).** Introduction to current research approaches and methodologies in plant developmental biology and molecular genetics. Laboratory and lecture. *Recommended Background:* Biology 140 and 240 or equivalent.

**522-523 Advanced Plant Physiology I, II (3, 3).** 522—Plant biochemistry and metabolism: respiration, photosynthesis, carbon partitioning, and biosynthesis of specialized plant products: terpenoids, alkaloids, phenolics and plant growth regulators. 523—Growth and differentiation of plants at molecular, cellular and organismal levels, regulation of development; macromolecular interpretation of differentiation, dormancy, germination, flowering, and senescence. *Recommended Background: 401 and 1 semester of introductory plant physiology or cell biology.*

**Cultural Studies in Education:**

**560 Introduction to Qualitative Research in Education (3).** Fundamentals of qualitative research methods and development of skills needed for qualitative research proposals. Overview of qualitative research methods; ethnography, case study, historiography, biography, oral and life history. Critical reading and evaluation of qualitative research studies.

**Ecology and Evolutionary Biology:**

**414 Plant Anatomy (3).** Cells, tissues and organs, their development in vegetative and reproductive structures of vascular plants—emphasis on seed plants. *Recommended Background: Biology 111-112 or Biology 130-140 or equivalent.*

**433 Plant Ecology (3).** Interactions between individuals, species, communities and their environments. Circulation of energy and matter in ecosystems. Weekly field trips or laboratory periods, and at least two weekend field trips. *Recommended Background: 330 or equivalent.*

**560 Biometry (3).** Statistical applications in biological research. *Recommended Background: Statistics course or consent of instructor.*

**Environmental and Soil Sciences:**

**434 Environmental Soil Chemistry (3).** Composition and chemical properties of soils and processes that govern fate and behavior of chemicals in soil environment: clay mineralogy; soil organic matter; mineral weathering and stability; aqueous speciation; surface chemistry; ion exchange, adsorption and molecular retention;

oxidation/reduction; and soil acidity, alkalinity, and salinity. *Recommended Background: 210; Chemistry 110 or 350.*

**511 Soil-Plant Nutrient Cycling in Managed Ecosystems (3)** Principles of nutrient cycling and soil exchange processes affecting nutrient availability to plants; management of soil nutrients to optimize crop growth, environmental implications of nutrient management; effects of both traditional and non-traditional nutrient amendments; and constraints of measuring plant-available nutrients in the soil. *Contact Hour Distribution: 3 hours and 1 rec.*

**516 Soil Biology and Biochemistry (3)**. Soil organisms and their activities in soils: soil ecology, biogeochemical cycling of important elements, organic matter dynamics, and applications of agricultural and environmental biology and biochemistry. 2 hours and one 3-hour lab. *Recommended Background: 210 or consent of instructor.*

**544 Environmental Soil Physics (3)**. Basic understanding of soil physical properties and processes; influence of soil physical properties on water and chemical movement in soil; practical experience in the measurement and analysis of soil physical properties, water flow, and chemical movement in soil.

#### **Geography:**

**439 Plant Geography of North America (3)**. Characteristics and distribution of major plant communities of Canada, the U.S., Mexico, and Central America. Relationships to climate, soil, fire, and human disturbance. Long-term history and future prospects. *Recommended Background: 131 or 132 or coursework in botany or consent of instructor.*

#### **Information Sciences:**

**560 Development and Management of Collections (3)**. Selecting and preserving a variety of items (tangible and intangible) to meet needs of particular users; community analysis; policies and procedures; evaluation; purchasing.

#### **Sociology:**

**633 Survey Design & Analysis (3)**. Systematic exploration of survey problems through student participation in design & analysis of survey. *Recommended Background: Sociology 531 or consent of instructor.*

**Students may also consider:**

**Educational Administration 560 Grant Writing and Project Management (3)**

Processes of finding funding for research efforts, writing grant proposals, negotiating with funding sources, implementing and maintaining funded programs, and closing out projects at end of funding support.

**Environmental and Soil Sciences 554 Environmental Soil Biology (3).** Biology and biochemistry of the soil environment as it applies to environmental and agricultural processes. Topics include the soil habitat, microbial ecology and diversity, biogeochemical cycling of nutrients, biodegradation, and research methodology to investigate soil microorganisms.

**Entomology and Plant Pathology:**

**512/612 Soilborne Plant Pathogens (3).** Causal agents; host-parasite-soil environment interactions; epidemiology; detection and identification of soilborne plant pathogens; biological, cultural and chemical control. *Recommended Background: EPP 313 or consent of instructor. Comments: 612 for PhD students only.*

**514 Bacterial Plant Diseases (3).** Causal agents; host-parasite-soil environment interactions; epidemiology; detection and identification of bacterial plant pathogens; biological, cultural and chemical control. *Recommended Background: EPP 313 or consent of instructor.*

*See the online graduate catalog for a complete list of relevant course offerings.*

## TUITION, FINANCIAL AID, AND FEES

### Assistantships

The department provides assistance to all graduate students by way of furnishing plants, greenhouse space, outdoor research areas, laboratory facilities and equipment. Such assistance represents a substantial investment of faculty time, facilities and funds.

Graduate assistantships may be available in the form of graduate research or teaching assistantships sponsored by the Tennessee Agricultural Experiment Station (GRA), by the College of Agricultural Sciences and Natural Resources (GTA) or GRAs made available by individual faculty members through grants. Graduate assistantships usually provide a basic stipend plus waiver of maintenance fees and non-resident tuition as well as health insurance. Stipends are subject to federal taxation. Graduate students supported by research assistantships may take up to 6 to 11 semester hours per term (when on half-time GRAs) and 9 to 13 semester hours per term (when on quarter-time GRAs), but may not exceed 20 semester hours for the year.

To avoid a one-time \$49 fee for use of the Student Health Center occasioned by illness during summer, students are required to maintain enrollment in 3 Summer semester hours (***Please Note: graduate students on assistantships do retain health insurance coverage during the summer and incur no costs beyond the co-pay if they must see their regular physician.***) Summer enrollment requirements may be satisfied with 3 hours in PLSC 502 "Registration for Use of Facilities" which do not apply toward PS graduate degree requirements.

Students who receive assistantships or fellowships are discouraged from having other employment and should discuss their intentions with their faculty advisor and Department Head. Information and application forms for assistantships are available from the Head of the Department.

Appointments are normally on a one-fourth to one-half time basis, and the annual stipend is payable in either nine or twelve monthly installments. Graduate research and teaching assistantships are usually awarded to students before their first semester, during the application process. Assistantships are generally not available to graduate students on the non-thesis option.

There is no official provision for annual leave for GAs, GRAs or GTAs. Leaves of absence are permitted by mutual agreement between the graduate assistant and his/her major professor.

### UT Graduate Student Assistantship Handbook Online

<http://gradschool.utk.edu/GradAsstHandbook.pdf>

### Graduate Research Assistants (GRA)

Graduate Research Assistants are employees of the University, the Agricultural Experiment Station and the Department of Plant Sciences. GRAs are responsible to the department head and are under supervision of their major advisor. The GRA contributes to the research program of the Agricultural Experiment Station and at the same time acquires training in research techniques and methods. The GRAs workload

in research is considered to be one-half of a full-time equivalent. Thus, they are required to work approximately 20 hours per week to the project of his/her major professor.

The university requires that GRAs on a 12-month appointment maintain full-time status each semester (including Summer). This means that GRAs should register for a minimum of 6 hours of coursework each semester (Spring, Fall) and 3 credit hours (Summer) during their program. Students may fulfill this requirement in the summer by registering for 6 hours of thesis (PLSC 500).

GRAs are classified as student employees and receive student health insurance. They will also receive student activity cards and are eligible for student athletic tickets and official University holidays.

### **Graduate Teaching Assistants (GTA)**

Graduate Teaching Assistants may be employed directly by the Department of Plant Sciences, by the College of Agricultural Sciences and Natural Resources, or proportionately by both. GTAs are responsible to the department head and are under supervision of their major advisor. GTAs may assist with departmental teaching and may perform research for their major professor. GTAs who are employed on one-fourth time receive one-fourth the annual stipend and are required to give approximately 10 hours per week of teaching assistance to the department. GTAs who are employed on one-half time receive a one-half time annual stipend and are required to give approximately 20 hours per week of teaching assistance to the department. The assistant must be continually making progress toward the advanced degree and conducting a thesis study during the course of the degree program.

GTAs are required to attend a University Orientation for Graduate Teaching Assistants the first semester that they are awarded this support. For more information, see the Graduate School webpage: <http://gradschool.utk.edu/default.shtml>

### **Non-assistantship students**

Full and part-time employees may pursue graduate degrees in Plant Sciences or other UT programs. Procedures for making up work and number of hours per semester are detailed at <http://www.tennessee.edu/humanresources> (Policy No.: HR0330).

Students not on assistantship or employed by UT will work with their advisor to determine appropriate courses and research schedules on a case by case basis to ensure a timely progression through the program that also meets the student's employment requirements.

### **Fellowships**

Some graduate fellowships may be available through the University or Graduate School. Eligibility requirements, stipends and responsibilities for graduate fellowships are found at the graduate studies web site (<http://gradschool.utk.edu/default.shtml>).

### **Scholarships, loans, financial aid & fees**

Up-to-date information about tuition and fees for graduate students can be found on the bursar's webpage: <http://web.utk.edu/~bursar/volxfees.html>

Some scholarships are usually available for students not on assistantships. Applications can be obtained from the Plant Sciences Scholarship Coordinator or from the CASNR Dean's office (<http://casnr.tennessee.edu/futurestudents/>). Graduate students may compete for the Hilton A. Smith and National Alumni Association Graduate Fellowships/Scholarships, which are open to all graduate students. The Office of Graduate Admissions can be contacted for information and application forms.

The Office of Financial Aid and Scholarships, at 115 Student Service Building, administers student loans for graduate students.

### **Tuition exemptions**

In addition to the stipend, Graduate Teaching Assistants and Graduate Research Assistants are entitled to a waiver of fees for the period of appointment in accordance with university policy. University fees include a maintenance fee (required of all students), tuition, and a program and services fee. The waiver of fees for assistantships applies to maintenance and tuition fees only; it does not include the program and services fee. Maintenance fees and tuition waivers apply to appointments at a one-fourth time basis or higher.

### **Employment**

Graduate GTA and GRA students with 0.50 FTE appointments may not incur further on-campus work obligations without specific approval from the Dean of Graduate Studies. GRA and GTA students with 0.5 appointments are discouraged from engaging in off-campus employment.

### **Work-study & hourly work**

When funds are available, work-study programs are possible for students needing financial assistance. Part-time employment may be available within ongoing research projects. Details can be obtained by contacting the Department Head.

### **On & off-campus work for spouses**

Part-time and full-time employment may be available for the student's spouse. Availability, types, and compensation will depend upon personal qualifications. The Tennessee Department of Labor and Workforce Development maintains listings of employment opportunities, and seeks to assist new residents finding suitable employment. Information about their services can be found at:

<http://www.state.tn.us/labor-wfd>

### **Fees for University courses & services**

Major fee categories established by the University are maintenance fees, non-resident tuition, and program and services fees. The amounts of these fees are determined annually and are published in the Graduate Catalog of the University. Program and services fees support educational and non-educational services provided by the University and are required of all students. Part-time students may pay less than

the maximum amount, depending on the number of hours taken. Fees and expenses for the summer semester are the same as for other semesters during the academic year. Although the summer term is divided into sessions of varying lengths, tuition and fees are assessed at the regular semester-hour rate up to the maximum charge for a complete regular semester. All student fees are due in advance and should be paid in full by due date shown on the *VolXpress* statement. Consult the graduate catalog for details regarding prepayment and deferred payment plans, and refunds for withdrawal.

*Out-of-state tuition* will be charged to all Tennessee non-residents. However, both maintenance fees and out-of-state tuition are paid for students with assistantships.

Students also pay a \$30 *graduation fee*. There are no additional charges for diploma or binding. The graduation fee is non-refundable and is valid for two semesters after the semester in which it is paid.

### **Graduate student health insurance**

Students who are not receiving assistantships may purchase graduate student health insurance at a reasonable cost. The primary medical service for the health insurance is the on-campus student health clinic.

Graduate students on assistantships receive Health Insurance as a paid benefit of employment with UT. If you hold at least a 25 percent time appointment, you are automatically enrolled in the student health insurance plan as a benefit of your assistantship. You will be issued an insurance card and brochure soon after your department provides your appointment paperwork to the Office of Human Resources. The current plan requires you to be enrolled in at least three graduate credit hours each term to maintain coverage.

Because the University has signed with a new provider, you are no longer required to use the Student Health Service as your primary provider. Should you wish to use the Student Health Service as your primary provider, you have two choices:

- You can register for nine or more hours to cover your health service fee, or
- You can register for fewer than nine hours and pay a \$70 health service fee

If you choose to seek medical care outside the Student Health Service, you should check if your provider is approved in the United Healthcare network to insure receiving maximum benefits under that plan's coverage. In order to ensure that you receive the best health care possible, please familiarize yourself with the health insurance brochure. This brochure explains insurance deductibles, co-pays, and other plan benefits and requirements. The brochure also provides information about purchasing coverage for your dependent(s) and about the availability of an optional limited dental insurance plan, which may also be purchased.

You can access information about your health insurance on the Graduate Studies Web at <http://gradschool.utk.edu/default.shtml> by clicking on Student Employee Insurance on the left hand side of the page. You may also discuss this plan with an insurance manager at the Student Health Service at 974-2264.

For additional information, see: <http://www.hildrethins.com/PDFs/Brochure.pdf> and <http://www.hildrethins.com/uthealth.htm>.

## Chapter II

### WELCOME ABOARD (for *Enrolled* students)

- *Regulations published in the UT Graduate Catalog and Hilltopics take precedence over Departmental handbook guidelines wherever there is a conflict.*
  - *Quotations shown in this handbook are from the Graduate Catalog.*
- To receive **GradNews** emails from the UT Graduate School, add your name to the listserve by sending an email request to: <[gss3@utk.edu](mailto:gss3@utk.edu)>

#### Steps to M.S. & Ph.D. degrees

##### 1. Assignment of a faculty advisor (Major Professor)

Every student will be assigned a major professor with expertise in the area of interest expressed by the student. Matching applicants with an appropriate advisor usually occurs prior to admission to the Plant Science graduate program to the mutual acceptance of both student and advisor. In cases where the student is recruited to work on a specific project funded by external funds, the major professor will be the faculty member who received the funds. In the case of departmental assistantships, an effort is made to allocate resources equitably to all faculty or areas of research. This assignment should be made within the first semester of residency.

##### 2. Graduate advisory committees

M.S. and PhD graduate advisory committees are usually established within the first semester of enrollment. Once the graduate advisory committee membership has been established, students are expected to schedule annual committee meetings with their graduate advisory committee. The faculty member, in consultation with the student's graduate advisory committee, will determine whether appropriate progress has been made during the prior year and will provide the Plant Sciences Graduate Committee chair with a narrative for the student and committee to serve as annual recorded progress (*see Appendix A*).

*Please note:* Each student's advisory committee *differs* from the Plant Sciences Departmental Graduate Committee, whose members are listed at the front of this handbook. The Department of Plant Sciences 's Graduate Committee is charged with ensuring that PS graduate students progress satisfactorily toward completion of their specific project or research goals and are enrolled for relevant coursework at UT (*see Appendix A*).

##### Master's advisory committee

Each student will have a graduate advisory committee consisting of a major professor and at least two faculty members at the rank of assistant professor or above. If the student has a declared minor, one of the committee members must be from the department of the minor field. The student, in cooperation with the major professor, should identify and recruit faculty members to serve on the

graduate student's advisory committee by the end of his/her second semester in graduate school. The purpose of this committee is to assist the student in planning a course and research program to ensure fulfillment of degree requirements. The advisory committee must sign the Admission to Candidacy form for Masters degree candidates to submit to the Graduate School prior to the prior semester in which they plan to graduate.

### **Doctoral advisory committee**

The Graduate School requires that the student's doctoral committee "be composed of at least four faculty members, three of whom, including the chair, must be approved by the Graduate Council to direct doctoral research. At least one member must be from a department other than that of the student's major field." The student, in consultation with his/her major professor, should suggest a list of names to the Department Head for approval by the end of the second semester in graduate school. The committee is responsible for administering Comprehensive Examinations (written and oral) and certifying the student's mastery of the major and collateral fields. In addition, the committee must approve all course work applied toward the degree, certify the student's defense of the dissertation, and recommend the dissertation for acceptance by the Graduate School. The advisory committee must sign the Admission to Candidacy form for Masters degree candidates to submit to the Graduate School prior to the prior semester in which they plan to graduate.

### **3. Proposed program of study**

Each student, in cooperation with the major professor, should develop a proposed program of study by the end of his/her second semester in graduate school. The student should then schedule a meeting of the advisory committee to review, revise and approve his/her graduate program. In planning this program the student should pay particular attention to the Graduate School requirements for the M.S. degree.

For Ph.D. Candidates, once a student enrolls in PLSC 600, continuous enrollment is required through completion of the degree *and* students must enroll for 3 credit hours of PLSC 600 during the semester in which they intend to graduate.

### **4. Research proposal**

Each student must submit a written proposal for the research problem or creative achievement to be undertaken in his/her graduate program. A topic should be identified and a proposal prepared and submitted to the student's graduate advisory committee no later than the third semester (not counting summers) in graduate school. A student who does not submit the thesis proposal by the end of the first year of study is considered to be making unsatisfactory progress, and may have their assistantship terminated.

During the research proposal stage, students should determine the equipment, supplies, time and other resources required for successful completion of the project,

and should ensure that they have adequate training and access to the equipment, as well as funding for other required resources. This planning component of the research is done in close consultation with the major professor or academic advisor.

After the student and major professor have refined the proposal to their joint satisfaction, copies should be distributed to the student's advisory committee. The student should then schedule a meeting of the committee to receive suggestions and direction on the proposed research plan. Typically, the graduate student will present a departmental seminar describing the proposed research. The process works most efficiently when the graduate student's advisory committee is able to review the research proposal and proposed program of study during the same meeting.

## **5. Reasonable term of study & time limits for graduate degrees**

The "normal" period of time required to complete a graduate program for a 'full time' graduate student in Plant Sciences often varies with the complexity of the chosen research or project and varies among major professors. As a general guideline, graduate degrees may be completed in two to three years for Master's students and three to five years for doctoral students following admission to the program.

There are specific time frames within which graduate students must complete their degrees or they will be withdrawn from graduate school. Candidates for the master's degree have six calendar years to complete the degree, starting at the beginning of the semester of the first course counted toward the degree. Candidates for doctoral degrees must complete all comprehensive examinations within five years of their matriculation, and all requirements must be completed within eight years from the time of a student's first enrollment in a doctoral degree program.

Graduate students are responsible for meeting the requirements established for the M.S. and Ph.D. degree programs that are *in effect at the time that the graduate student successfully achieves candidacy* for the degree they are pursuing. Candidacy is formalized by submitting the appropriate Application to Candidacy forms (see:

[\[http://gradschool.utk.edu/gradforms.shtml\]](http://gradschool.utk.edu/gradforms.shtml)

## **6. Participation in research projects**

Master's (thesis option) and Ph.D. students are required to submit a thesis or dissertation containing the results of original research. In addition to thesis or dissertation research, students might be encouraged to participate in other research projects of their major professor. Many routine and specialized methods and techniques used in research are not taught in the classroom. Exposure to and participation in diverse research topics are considered essential parts of graduate education. Students on graduate research assistantships are employees of the University and usually work full-time during the summer months and between semesters and part-time during the fall-spring academic year. Graduate students not supported by assistantships are often expected to participate in research projects, in addition to their thesis or dissertation project.

Specific requirements will vary among research projects and the student's course of study. Each research project has different objectives and work load requirements.

The student and the major professor should establish, at the beginning of the graduate program, what the student's contribution will be in project research.

GRA and GA work responsibilities may include:

- Students individual thesis or dissertation research, once agreed upon by both student and major professor. A student's research project is considered to have priority over most other research work.
- Other research and duties as defined by the major professor

GTAs may perform similar duties in addition to their teaching responsibilities.

## **7. Evaluation of student progress**

Graduate student progress will be evaluated once per year by the major professor in consultation with the student's graduate advisory committee members. Students must maintain a 3.0 grade point average and receive a satisfactory review of progress by the student's graduate advisory committee (*see Appendix A*). The review will be documented annually in the form of a memorandum to the student from the major professor and copied to the chair of the Plant Sciences Graduate Committee. Flexibility within the graduate program allows variation among individual courses of study, but students are expected to make satisfactory progress in acquiring knowledge of a subject area and in completing degree requirements. The student and major professor should have a mutual understanding of what each is expected to contribute to the program of graduate study. A student's graduate study may be terminated if progress is unsatisfactory. Appeals normally are made through the Department Head to the University administration. The Graduate Council Appeal Procedure should be consulted. The student handbook, *Hilltopics*, includes UTK standards of conduct, policies on disciplinary action, and procedures for appeals.

Once the graduate program and project, thesis or dissertation topic have been determined, the student is required to schedule an annual committee meeting to review the student's program and plan of work. This meeting should be accomplished by January 31 and each student must complete an annual progress report (*see Appendix A*), signed by the major professor.

## **8. Professional meetings & travel support**

Graduate students are encouraged to attend at least one professional meeting during their degree program, and especially to present the results of their research. In general, attendance at professional meetings is at the student's expense. At some professional meetings, reduced registration, hotel rates and other amenities are available for graduate students. In some cases, travel funds are available from the department or individual faculty member's grants for students presenting papers at professional meetings once per year.

Graduate students are expected to apply for supplemental funding from other sources. Graduate students requesting funds in support of travel should be prepared to provide the following statements & information:

- Justification for travel addressing the relationship of the meeting to the student's program with emphasis on how it enhances research efforts or the student's portfolio
- Potential benefits to Department of Plant Sciences, CASNR & TAES
- Evidence of application for funding from additional sources
- Letter of major advisor's support
- A detailed budget

Sources of possible funding include travel awards from professional associations that support graduate student efforts, the UT Graduate School through GSA (*see below*), and the College of Agricultural Sciences and Natural Resources:

<http://casnr.tennessee.edu/facultystaff/forms/UG-travel2007-2008v1.pdf>

In particular, graduate students are encouraged to apply for professional development fund travel grants, which are administered by the Graduate Student Senate. The purpose of these funds is to provide travel grants for UT Knoxville graduate students to make scholarly presentations at professional meetings.

Graduate student eligibility for University Program & Services Fee (UPSF) funds

1. A graduate student may apply to the Travel Fund Advisory Committee if he/she is a full-time, degree-seeking, UTK student. Priority will go to advanced graduate students
2. Major professor & department head must sign the application.
3. Transportation, lodging and registration expenses will be reimbursed from the UPSF Graduate Student Travel Fund. (Due to limited funding, meals are **not** allowed as reimbursable expenses). Reimbursement will be limited to the lesser of \$500.00 or the actual out of pocket expenses which qualify hereunder. The Advisory Committee encourages and considers cost sharing by student, department and/or college.
4. While enrolled at UTK, a graduate student is eligible for a maximum of one travel award per year from the UPSF Graduate Student Travel Fund, however, recipients may not receive more than one award from the UPSF Graduate Student Travel Fund each academic year.
5. The UPSF Graduate Student Travel Fund Advisory Committee, at its sole discretion, reserves the right to waive/modify any or all of the eligibility requirements contained herein.

For forms & information, visit <http://web.utk.edu/~gss/travel.html>. To receive notifications of deadlines by email, join the *GradNews* listserve by emailing your request to [gss3@utk.edu](mailto:gss3@utk.edu)

Submit travel applications to:  
UPSF Graduate Student Travel Fund  
C/o Dean of Students  
413 Student Services Building  
Knoxville, TN 37996-0248

Deadlines for UPSF applications are:

<u>For Travel Beginning</u>	<u>Application Deadline</u>
Sept 1 to Jan 14	1 September
Jan 15 to May 14	19 January
Apr 15 to Aug 31	15 April

Many professional societies have graduate student competition for the best presentation and reward outstanding students with monetary prizes. The Department of Plant Sciences has established a fund to match graduate student awards. Policies concerning distributions from this fund are given in Appendix B.

## **9. Preparation of manuscript(s)**

Scientists are expected to publish research results in peer-reviewed journals. The number and quality of these publications are often important factors for career advancement and reward. Each graduate student is expected to prepare manuscript(s) of his/her research results or non-thesis M.S. projects for publication. M.S. (thesis) and PhD students should study peer-reviewed professional journals for style and content prior to writing the thesis or dissertation. The thesis or dissertation can be written in such a way (manuscript format) as to allow easy extraction for professional publication. Alternately, the thesis or dissertation may be a compilation of peer-reviewed papers written by the graduate student that are published, in press, or in review.

Authorship of manuscripts should be according to the contribution of each to the overall project. Typically, the graduate student will be listed as first author on a publication that results from the research in his/her thesis dissertation. If the student does not take initiative in writing the manuscript(s), however, the major professor may become primary author.

Ph.D. students are also encouraged to undertake, as first author, preparation of a review paper for submission to a scholarly journal. Comprehensive papers like these, that review existing literature within the student's area of expertise, provide an exercise in organization and clarify knowledge across the field. Such papers can also give new professionals prominence in the field as they are often highly cited by other scientists.

## **10. Preparation of grant proposal(s)**

Graduate students are encouraged to gain experience in preparation and submission of competitive grant proposals in pursuit of funds to conduct research, teach or offer novel outreach experiences to diverse audiences. Graduate students are encouraged to participate in preparing full or parts of proposals with their major

professor and colleagues and should work closely with their major professor when preparing pre-proposals or grant applications.

Please note: Graduate students **may not** directly submit proposals to funding agencies. Be aware that The University of Tennessee requires a particular set of forms and procedures be used in preparation of grant proposals. UT maintains a professional staff of experts to assist with this process. Please inform your major professor of intent to prepare a grant proposal & work together to fulfill these requirements.

### **11. Graduate student teaching policy**

Graduate Teaching Assistants (GTAs) will be assigned by the Department Head to assist faculty in teaching courses. Normally GTAs have a teaching responsibility each semester.

Other Plant Sciences graduate students are encouraged to participate in the teaching program by consulting with the student's major professor and the instructor for teaching opportunities in courses offered by the department. One hour of credit may be obtained for each semester of participation in the teaching program. To obtain this credit, the student should register for PLSC 569 "Teaching Practicum" or ANR 512 "Teaching internship in agriculture and natural resources", with approval of the instructor responsible for the course being taught. A maximum of 3 hours credit is possible.

### **12. Seminar requirements for graduate degrees**

The Plant Sciences Faculty Seminar Coordinator schedules a weekly departmental seminar during Fall and Spring semesters. Additional seminars may be presented at other times to accommodate the schedule of the speaker. Students and faculty are expected attend all seminars in the absence of conflicts with other commitments. Attendance may be taken and unexcused absences may merit consultation with the Plant Sciences seminar coordinator, major professor or department head.

All incoming Plant Science MS graduate students and PSI-PhD students *who have not already earned an MS or MA degree* are required to enroll in PS 505 ("Professional Development and Presentation Skills") during their first fall semester of attendance. PSI-PhD students who have a MS or MA degree are exempt from the PS 505 requirement. If the student is required to take PS 505, enrollment in 1 hour of PS 505 will be in place of one of the PS504 seminar hours required for the degree. All other graduate students must enroll in PS504 ("Seminar") for one-hour credit each year in attendance (thus MS students enroll in 1 hour of PS 505 their first Fall semester in attendance, then for 1 hour of PS504; PhD students typically enroll three times for PS504 during their course of study).

MS and PhD graduate students are required to present a "Proposal" or "Status of Research" report, usually in the second semester of enrollment in the PS graduate program. Proposal/Research status seminars are usually scheduled to accommodate 2 students a week, thus should be about 20 minutes long with an additional 10 minutes for a question & answer session after each. PhD students in PSI-Plant Sciences program

are required to present a second topical seminar, usually during the second year of study. Topics can be of parallel interest to their research, but should not be directly related to the PhD project. Topics should be agreed upon in advance after consultation with the seminar coordinator and major professor.

Students are expected to provide a seminar title to the PS faculty seminar coordinator *at least 2 weeks in advance* of the seminar. Students are responsible for posting written fliers of their seminars on bulletin boards, entrance doors, elevators, and corridor walls of Ellington Plant Science and the Plant Biotechnology Buildings *one week before* their seminars are given. Students are also expected to remind the faculty seminar coordinator that titles are to be emailed to PS faculty and related departments by Wednesday on the week before the seminar is scheduled.

Graduate students are expected attend all departmental seminars both in fall and spring semesters. PS504 will be graded A-F for each semester enrolled. The student's presentation (if given), attendance, and participation in constructive reviews will be used to calculate grades.

**An additional note about Graduate Student Exit Seminars:**

All graduate students are required to present an exit seminar from their thesis or dissertation research (or special project for non-thesis students). Students often present exit seminars just before or in conjunction with their formal thesis or dissertation defense. The exit seminar is considered part of credit given for PS 500/600 (Thesis/Dissertation) and *does not receive additional seminar credit*. Exit seminars may be formatted after an oral presentation [to be] given as a presentation at a professional meeting. Exit seminars may be scheduled in the PS504 timeslot, pending agreement by the PS faculty seminar coordinator, but are frequently scheduled to accommodate availability of the graduate student's faculty advisory committee.

**13. Statistical aptitude & use of departmental computers**

It is expected that each graduate student will enroll in one or more statistics courses to become familiar with statistical methods used in agricultural and biological research. The selection of courses should be discussed with the major professor and approved by the students' Advisory Committee.

The department strives to make sure every graduate student has access to computers and other equipment needed for academic and research purposes. However, we do not have adequate resources to place a computer on the desk of every graduate student. Students should discuss their computer needs with the major professor, who may request one of the departmental computers be made available to the student. Priority will be given to graduate students in the final stage of their program for data analysis and thesis/dissertation writing.

#### **14. Comprehensive preliminary examinations for doctoral students**

The comprehensive preliminary examination should be scheduled with appropriate committee members toward the end of the formal coursework requirements for the degree. Normally, this would be after about two-to-three years in the Ph.D. program. The examination must be completed successfully before admission to candidacy for the degree and at least one semester before conferral of the degree. The student's Advisory Committee with the Chair of the Committee administering the examinations will conduct the comprehensive examination. The student is allowed two attempts at passing the preliminary examinations.

When the student and his/her major professor feel the student is ready to attempt comprehensive examinations, the major professor will schedule the written examinations that will consist of questions from each committee member on a topic related to the student's field or research. Normally, each examination will require no longer than two days for completion, and all written examinations will be completed within a one or two week period. Each committee member will determine whether his or her questions are to be answered open or closed book. The oral examination should be scheduled only *after* all written comprehensive examinations have completed and passed. The oral comprehensive exam must be passed at least one semester prior to completion of the degree.

##### **Format of the exams**

Each member of the Advisory Committee will be asked to submit a list of exam questions to the Chair. These questions will serve as the written examination for that Advisory Committee member. After each written examination is taken, the Advisory Committee Chair will deliver the student's written response to the originating member. This member will grade the examination and return it to the Chair with the indication of pass or fail. If the student passes all written examinations, the Chair will then schedule an oral examination. The Advisory Committee will serve as the examining committee. If the student passes the oral examination, he/she is eligible and applies for admission to candidacy for the Ph.D. degree.

##### **In the event of failure of exam(s)**

If the student fails one or more of the written examinations, the Chair will convene the Advisory Committee to discuss an appropriate course of action. Alternatives that may be considered include: administering another written examination in the area that the student failed, after giving the student additional time for preparation; requiring additional coursework prior to administering an additional written examination in each of the areas failed; or proceeding with the oral examination with the understanding that appropriate remedial action will be required before admission to candidacy.

If the student fails any of the written examination(s) for a second time, the student is dismissed from the graduate program. Likewise, if the student fails the oral examination a second time, the student is dismissed from the program.

### Appeals process

If a student feels he/she has been treated unfairly during any stage of the examination process, he/she has the right to appeal to the Department Head. The Department Head will review the examinations in question, seek advice from other departmental members and meet with the student's graduate advisory committee to discuss the student's problems. The Department Head can suggest a re-examination, uphold the decision of the committee, or propose alternative solutions. The Graduate School provides and administers further appeal procedures.

### **15. Distribution of a final draft of the report, thesis or dissertation to the committee & scheduling oral exams**

"The final draft of the non-thesis report, thesis or dissertation must be distributed to all committee members at least two weeks prior to final examination date. Students are responsible for scheduling final oral & written (M.S. non-thesis) exams. All exams must be held at least two weeks before the final date for acceptance & thesis approval by Office of Graduate Student Services on the Graduate Council's behalf."

"A doctoral candidate must pass an oral examination on the dissertation. The dissertation, in the form approved by the major professor, must be distributed to the committee at least two weeks before the examination. The examination must be scheduled through the Office of the University Registrar at least one week prior to the examination and must be conducted in university-approved facilities. The examination is announced publicly and is open to all faculty members. This examination must be passed at least two weeks before the date of submission and acceptance of the dissertation by Graduate Student Services."

Final thesis or dissertation copies, in paper or digital form must be prepared (at the student's expense) and distributed as required to each member of the committee, the Department Head and as directed for University and Library records.

### **16. Finished with your degree? Checklist for leaving the department & University.**

- \_\_\_\_\_ Put your name, date and clear labels on all freezer stocks, experimental standards, etc.
- \_\_\_\_\_ Provide your major professor with backup data and thesis/dissertation text files
- \_\_\_\_\_ Clear office desk & lab workspaces
- \_\_\_\_\_ Inform Janice Crockett of your final date of employment
- \_\_\_\_\_ Submit to Sandy Kitts a PDF file containing your thesis/dissertation title page, abstract & signed committee page
- \_\_\_\_\_ Return all university & departmental keys
- \_\_\_\_\_ Pay all relevant university & departmental fees
- \_\_\_\_\_ Provide Janice Crockett with your alumni contact information for forwarding mail, job announcements & referrals

## **Brief Words about Academic Honesty & Student Conduct**

We expect our graduate and undergraduate students to exemplify the highest standards of personal conduct and academic honesty. The *Academic Honor Statement* for all UT Students follows:

*"An essential feature of The University of Tennessee is a commitment to maintaining an atmosphere of intellectual integrity & academic honesty."*

*"As a student of the University, I pledge that I will neither knowingly give nor receive any inappropriate assistance in academic work, thus affirming my own personal commitment to honor and integrity."*

Consequences of failure to adhere to these principles, including the appeals process, are detailed extensively in **Hilltopics: the Student Handbook**. For the most recent version of **Hilltopics**:

<http://dos.utk.edu/hilltopics/>

### **Alcoholic beverage policy**

"Drinking or being under the influence of alcohol or illegal drugs while on the job" or "the use, possession, or distribution of alcohol on University property" is a violation of the University work rules and is so stated in the *UT Personnel Policies and Procedures Manual*. Violation of work rules may be cause for disciplinary action including possible termination of employment. As stated in the student handbook, *Hilltopics*, University regulations prohibit "all student organizations from serving or permitting the consumption, possession or display of any alcoholic beverage or containers at any time, or by anyone on University premises." The "use, possession, or being under the influence of alcoholic beverages on University-owned or controlled property" is a violation of the Standards of Conduct as defined in *Hilltopics*.

### **Illegal drug policy**

A statement of policy related to illegal drugs is contained in the *UT Personnel Policies and Procedures Manual* and is published each year in the *Hilltopics: Student Handbook*. The "Drug-Free Campus and Workplace" Policy (No. 720) states: "It is the policy of The University of Tennessee to maintain a safe and healthful environment for its students and employees." Therefore, University policy prohibits the unlawful use, manufacture, possession, distribution, or dispensing of drugs ("controlled substances" as defined in the Controlled Substances Act, 21 U.S.C. 812) and alcohol on University property or during University activities.

"Violation of this policy is grounds for disciplinary action—up to and including immediate discharge for an employee and permanent dismissal for a student. Federal and state laws provide additional penalties for such unlawful activities, including fines and imprisonment" (21 U.S.C. 841 et seq.; T.C.A. 39-6-401 et seq.). Local ordinances also provide various penalties for drug and alcohol-related offenses. The University is

bound to take all appropriate actions against violators, which may include referral for legal prosecution or requiring the individual to participate satisfactorily in an approved drug use/alcohol abuse assistance or rehabilitation program.

"Individuals who are paid by The University of Tennessee from federal grants or contracts must notify the University of any criminal drug statute conviction for a violation occurring in the workplace within five days after such conviction. The University is, in turn, required to inform the granting or contracting agency of such violation within ten days of the University's receipt of notification."

"Employees and their families needing treatment information should call their local Human Resources Office, Employee Assistance Program, or the State of Tennessee Employee Assistance Program (800-468-8369)." Students needing treatment information should contact their campus Student Affairs Office, student health center, or counseling center.

The following acts are violations of the Standards of Conduct as defined in the student handbook, *Hilltopics*: "Unlawful use, manufacture, possession, distribution or dispensing of drugs or alcohol on University-owned or controlled property or during University activities." A violation of the Standards of Conduct may result in permanent dismissal from the University.

## **Plant Sciences Departmental Facilities & Resources**

### ***Overview***

Facilities available in the department include offices and laboratories, greenhouses and growth chambers, facilities for sample preparation, field laboratory buildings and fields at Knoxville and on Branch Research and Education Centers.

The Plant Science Department office and laboratory space is located in the Plant Biotechnology Building and Ellington Plant Sciences Building in Knoxville. Greenhouses are located near these campus buildings.

Field research facilities are located approximately 4 miles from the campus in Knoxville, consisting of a headquarters building and 212 acres of land. The headquarters building has facilities for drying samples and for storage and handling of agricultural chemicals.

Research is also conducted at 14 Research and Education Centers across the state. Professional staff and academic faculty are located at 3 of these centers (Jackson, Greeneville & Knoxville), and technical personnel are located at each center to assist with research. Graduate students and faculty will coordinate each field experiment by preparing a formal *work plan*, which outlines the research, the resources required, and the contribution of each party in the experiment. The work plan must be signed by the principal investigator and include the names of those involved in the proposed research, at which time it becomes a working paper covering experimental procedures.

### **Faculty, staff & technical personnel in Plant Sciences**

A complete listing of faculty and staff, with their areas of specialization can be found at: <http://plantsciences.utk.edu>.

### **Office & desk assignments**

Graduate students are assigned office and desk space as near as possible to their major professor.

### **“Author Room” resources**

Plant Sciences maintains resources dedicated to preparing and printing slides, PowerPoint presentations, posters, brochures, etc. in the Plant Sciences main office in 252 Ellington PSB. Known as the Author Room, computing, scanning, and printing equipment are made available by signing up on a first-come, first-served basis. The author room remains locked after regular office hours and on weekends. Students will need to make prior arrangements with their major professor for access at these times.

### **Departmental & University vehicle use**

GRA or GTA duties may involve driving vehicles, for the purpose of attending meetings, accomplishing research or performing service (giving talks, visiting growers, etc.). Students must have a valid U.S. driver's license in their possession while driving.

The department has several vehicles available for official use in the conduct of research, extension, and educational activities. Use of the vehicles must be scheduled

through the Departmental Vehicle Coordinator (currently Dawn Brown), and departmental guidelines for vehicle use must be followed.

- Upon returning from a trip - remove all items including drink cans, lunch & food wrappers, etc., & all equipment & supplies
- **You** are responsible for removing excess dirt, dust & mud that is present after your use, *whether inside or outside of vehicle*
- If soil, pots, sand, or other debris is hauled in trucks, the driver must clean the truck bed before putting away the vehicle
- Vehicles are to be refueled and oil checked upon returning to campus whenever the fuel gauge reads one-half full or less.
  - UT motor pool is open 7:00 a.m. - 11:30 p.m. Monday -Friday
- Reported problems, broken parts, strange noises, malfunctions, etc., **immediately** to Administrative Supervisor (currently Dawn Brown)

The University also maintains a motor pool for official travel. Vehicles from the motor pool must be scheduled in advance of the anticipated usage date, and a vehicle request form must be submitted prior to utilizing the vehicle.

In order to operate University owned vehicles, the operator must be an employee of the University and must have a valid U.S. driver's license. It is expected that the driver will obey all traffic laws and regulations. Violations are at the offender's expense and may result in disciplinary action by the department, including suspension of Department of Plant Sciences and University vehicle usage.

### **What to do in a vehicle-related emergency**

If there is an injury - call 911. If an accident occurs always get a police report. Usually, the Voyager card can be used for minor repairs when out of town. However, should an emergency occur where the "Voyager" card cannot be used you may call the UT Motor Pool at (865) 974-2134: 6:30 am - 11:30 pm

**For emergencies from 11:00 p.m. to 7:00 a.m.,** you may call UT Safety and Security at 974-3114. This number will get a tow-in only. You may also call Chestnut Street Wrecker Service (Knoxville locale) at (865) 637-0103.

**For further safety precautions** call 911 and request that police come to where vehicle is broken down.

### **RIGHT-TO-KNOW program**

Employees and students of the University of Tennessee must be protected from exposures to hazardous chemicals through a combination of safety training and safe practices in the work place. A hazardous chemical is defined as any chemical that poses a physical hazard (fire, explosion, corrosion, reaction, etc.) or health hazard (toxin, irritant, carcinogen, mutagen, etc.) as defined in the OSHA Right-to-Know Law. Three laws govern the use of hazardous chemicals in University work places:

- The Right-to-Know Law applies to all uses of hazardous chemicals that are not on a laboratory scale. Areas covered by the Right-to-Know Law include shops

and manufacturing facilities. All persons in the work place must be trained regarding all hazardous chemicals in the work place prior to assignment, and at least annually thereafter. A material safety data sheet (MSDS) must be on file for each hazardous chemical and all containers must be labeled. All necessary safety equipment must be provided and used. Refer to Sections 3 and 9 of the Institute of Agriculture Health and Safety Manual.

(<http://bioengr.ag.utk.edu/safety/safetyplan/toc.htm>)

- The Laboratory Safety Standard applies to chemical manipulations carried out on a “laboratory scale” as defined in the OSHA regulations, which includes most University laboratories. A Chemical Hygiene Plan must be developed for each procedure, material safety data sheets (MSDS) must be on file for all hazardous chemicals, all persons conducting the procedure must be trained to do the job properly and safely prior to performing the procedure, and all necessary safety equipment must be provided and used. Refer to Sections 3 and 9 of the Institute of Agriculture Health and Safety Manual.
- The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) regulates the use of all pesticides. The Institute of Agriculture Pesticide Management Policy specifies the training and pesticide use requirements that apply to all employees and students of the Institute of Agriculture. All pesticide use must be conducted by, or under the direct supervision of, a certified applicator. All necessary safety equipment must be provided and used. Refer to Section 40 of the Institute of Agriculture Health and Safety Manual.

For more information, contact the work supervisor, department head, or the Institute of Agriculture safety officer (865.974.1153).

### **Accident and incident reporting**

All accidents and incidents must be reported immediately in accordance with University policies and procedures. Failure to report an accident may result in loss of Workers Compensation benefits. Failure to report unsafe conditions may result in future injuries and/or property damage. To report an accident, incident, or unsafe condition, contact the work supervisor, department head, or the Institute of Agriculture safety officer. Refer to the following sections of the Institute of Agriculture Health and Safety Manual: the accident reporting guidelines inside the front cover and Section 10.

### **Official University travel**

With approval of the major professor, graduate students may request authorization for travel on official business at University expense. The graduate student is expected to conduct him/herself in a professional manner at all times, and to abide by all rules and regulations pertaining to official business. A copy of the University Travel Policy may be found at: <http://treasurer.tennessee.edu/travel>.

Students should consult with the major professor before initiating travel, concerning procedures and forms needed for reimbursement of expenses. Authorization for official travel must be obtained by properly executing an "Authorization for Official Travel" form.

### ***Out-of-state travel***

For out-of-state travel, authorization forms should be submitted at least 3-5 working days before desired departure date so that travel can be entered into the IRIS system. When overnight travel is involved, the University may pay expenses (see university travel regulations for limits regarding meal and lodging reimbursements). Allowable travel expenses may be less than charges incurred at hotels, etc. Limits on travel expenses do not indicate amounts that *should* be spent. These are *maximum* amounts above which reimbursement cannot be made. University employees should be as conservative as circumstances permit in expending funds for official travel. For example, work-related travel is generally by automobile. The most economical motel at a particular location should be selected.

Requests for reimbursement for travel expenses must be submitted on an official UT Expense Account form. Motel/hotel receipts, registration fee receipts, etc., must accompany the completed form. Contact Patty Witt (currently responsible departmental secretary) for access or help with these forms. Requests for reimbursement of expenses for travel should be cleared through the Business Office within 30 days after the completion of travel.

UT policies, including those for expense reimbursement (out-of-state & in-state) travel are listed at <http://web.utk.edu/~to/toc.htm>.

### **Avenues of communication**

Announcements pertaining to job opportunities, assistantships, travel, etc., will be posted on bulletin boards outside departmental offices. Mailboxes for all departmental personnel are located on the second floor. Room 252 Ellington Plant Sciences Building in the main office suite of the Department of Plant Sciences. News and campus events may be found in the student newspaper, *The Daily Beacon* published by the university, Monday through Friday during the Fall and Spring terms. Local and regional events are published in the *Knox News Sentinel & Metro Pulse*.

Graduate students are also encouraged to join and participate in the UT Graduate Student Association. Meetings are held on main campus and, along with periodical social gatherings, often include discussion of academic and recreational opportunities.

### **Grounds for withdrawing financial support**

Failure to meet deadline dates in a degree program sequence may be grounds for loss of financial support. Students on work-related assistantships may be evaluated in writing by their faculty work supervisor at the middle and end of each semester. The student may be notified in writing of their work performance, and may respond to this evaluation. The student may be placed on financial-support probation at the mid-point or end of any semester for poor work performance, poor academic performance, or

excessive dropping of courses. If after 6 weeks, satisfactory work performance has not been achieved, financial support will be withdrawn.

### **Departmental grievance procedure**

In the event that a graduate student has a grievance and the issue(s) cannot be resolved between the student and major professor, the student is urged to discuss the matter with his/her graduate student advisory committee. If the student is not satisfied with the decision of the committee, he/she can contact the department head to determine if further action is warranted. If the department head is unable to resolve the issue, he may appoint a special committee composed of two faculty members (not members of the student's academic committee), a student representative, and the department head, to conduct an impartial hearing. Further appeal may be made by the student as outlined in the guidelines established by the University and published in *Hilltopics*, see (<http://dos.utk.edu/hilltopics/>) regarding "Graduate Student's Rights and Responsibilities."

Students and department faculty abide by these guidelines and those published in the Faculty Handbook (<http://provost.utk.edu/facultyhandbook/tableof.htm>) in the section on "UTK Teaching-Learning Guidelines."

### **Additional resources for student problem resolution**

#### ***Issues related to academic coursework:***

Issues related to grades or academic course work should first be addressed with the course instructor, then the appropriate department head, and finally the dean of the college in which the course is offered. If an appropriate solution cannot be reached through discussions with these individuals, the Associate Dean of Graduate Studies can offer assistance regarding the best "next steps" for problem resolution.

Issues related to academic advising should be addressed first with the advisor, then the director of the appropriate advising center, then the dean of the appropriate college.

#### ***Issues related to campus life:***

Comments and concerns related to campus life, student organization, or student interests should be directed to the Dean of Students Office. Staff in this office will assist in resolving a concern or identifying the appropriate channel of appeal.

Students unsure how to initiate the problem resolution process may contact the Dean of Students (974-3179), the Associate Dean of Undergraduate Academic Affairs (974-3564), or the Associate Dean of Graduate Studies (974-3251) for assistance in determining the appropriate administrative channels of appeal.

Several offices provide support and guidance for students pursuing resolution of University-related problems. These roles of these staffs include: (1) exploring problems encountered by individual students, (2) informing students of appropriate administrative channels utilized for problem resolution, and (3) working to address broader issues and policies that impact all students.

Students are encouraged to visit any of the following offices, which are open from 8:00 a.m. - 5:00 p.m. Monday through Friday, to share concerns and ask for assistance:

Associate Dean of Undergraduate Academic Affairs (401 Student Services, 974-3564). The Office of Undergraduate Academic Affairs is committed to supporting students and helping with the integration of student and academic life. This office provides support for students in the early undergraduate years and leadership opportunities for upper class students. The Associate Dean maintains effective working relationships with the undergraduate colleges and has a unique understanding of the academic problem students face.

Associate Dean of Graduate Studies (218 Student Services, 974-3251). The Associate Dean of Graduate Studies is available to assist graduate students who are experiencing difficulties or want to express academic concerns related to their graduate programs.

Dean of Students (413 Student Services Building, 974-3179). The Dean of Students Office sponsors and coordinates activities that focus on student growth and development outside of the classroom. This office advocates on behalf of all students, supplements existing channels of appeal, and helps students to resolve problems in a variety of areas.

Office of Equity and Diversity (1840 Melrose Avenue, 974-2498). The Office of Equity and Diversity assists the University community in its goal to affirm diversity as an opportunity for personal growth and development. OED provides resources and services for the enhancement of diversity programs campus-wide. In addition, OED works with members of the University community who wish to file a complaint of discrimination or sexual harassment. All complaints receive private and immediate attention.

Conflict Resolution Program (916 22<sup>nd</sup> Street, 974-4736). The Conflict Resolution Program provides mediation services whereby people having conflict can work with a neutral third party to resolve their differences. The Conflict Resolution Program also offers seminars, internship opportunities, and consultation for individuals or groups. Services are available to students, faculty, and staff. They are voluntary and confidential.

Dean, College of Agricultural Sciences and Natural Resources (CASNR) (126 Morgan Hall, 974-7303).

Office of Disability Services (191 Hoskins Library, 974-6087). If you need course adaptations or accommodations because of a documented disability or if you have emergency information to share, please contact the Office of Disability Services. This will ensure that you are properly registered for service.

## **Ag Campus & University Facilities & Resources**

### **UT VolCard (Student ID Card)**

All students, faculty, and staff are required to have a valid I.D. card (VolCard). This card is essential for use of various University facilities and programs including the libraries, TRECS, VolPrint, University check cashing facilities and all athletic events. The AllStar Plus Campus Wide Debit account can be activated with a deposit, which will allow the card to be used for vending, laundry and purchases at the UT Bookstore.

There is a charge for replacement of lost or stolen I.D. cards.

**VolCard Office**, 974-3430  
472 S. Stadium Hall  
<http://web.utk.edu/~volcard>

### **Parking on campus**

Graduate Students are required to purchase a hangtag permit to park on the Ag Campus, either in Lot 66 or in Lot 68 (CFN1). Parking permits may be purchased online: visit **Parking Services Homepage** [<http://web.utk.edu/~ps/default.html>]. Please refer to **Parking Regulations** [<http://web.utk.edu/~ps/psrules>].

### **On campus & local bus service**

Graduate and Undergraduate students may ride UT's bus transportation for free. On weekdays, when the university is in session, the "T" bus service includes an East-West Route that transits to and from the Ag Campus about every 5 minutes from 7:00 a.m.- 4:00 p.m. and every 10 minutes from 4:00 p.m. - 6:00 p.m. The Ag Express runs weekdays from 9:45 a.m. to 2:30 pm. Schedules & routes are subject to change, for latest schedules, see **Knoxville Area Transit (KAT) Website**: <http://www.ridethet.com>

*[For additional information about local transportation, see:*

***Parking Services Transportation** <http://web.utk.edu/~ps/psot.html>]*

### **Library facilities**

The Agriculture-Veterinary Medicine Library (<http://www.lib.utk.edu/agvet/>) is located across the street from Ellington Hall. Several literature searches and collections are available for research purposes. Additional reference material is available in Hodges Library on main campus (<http://www.lib.utk.edu/>).

### **Software access and & IT services**

UT Students and Plant Sciences graduate students have access to a wide range of computer software and support. For complete information about these resources, visit the Office of Information Technology at <http://www.utk.edu/it/>.

Access to several software programs is available free to UT students on a UT server. Software programs include Amos, ATLAS.ti, Clementine, EQS, HLM, LISREL, NUD\*IST, NVivo, NVivo Merge, Mathematica, Origin, PolyAnalyst, QDA Miner, Scientific Notebook, SigmaPlot, Stata SE, Stat Transfer, SUDAAN, TextAnalyst, WordStat.

For access to these resources, go to: <http://analysis.utk.edu>.

## **Statistical consulting center**

Plant Sciences Graduate students are encouraged to utilize the Statistical Consulting Center services to enhance the quality of their research <http://oit.utk.edu/scc/default.html>. Students are strongly recommended to schedule a brief meeting with a consultant as early in the project as possible. Consultants are available to work with students to effectively design experiments, apply analytical methods, and interpret results. Consultants can also help with web surveys, text analysis, data mining, graphics, visualization and mathematics. If necessary, consultants can provide responses to address journal reviewer or editorial concerns. At this level, co-authorship of manuscripts is often appropriate.

To ensure that you, your committee and your statistical consultant working toward the same solution, it is a good idea to arrange to have your major professor present at the initial meeting with the consultant so that there is consensus about the appropriate analytical methods chosen.

For most UTK students, the Technology Fee covers the cost of Statistical Consulting services for up to 10 hours per semester. Beyond that, the Fee provides a subsidized rate of \$20 per hour.

Each semester OIT and the Statistical Consulting Center offer seminars on research computing. For details about the seminars, see the Data Analysis Training Classes at <http://oit.utk.edu/training>.

OIT Support Line: (865) 974-9900  
Walk-in Consulting at 104 Aconda Court  
8:00am - 5:00pm Monday-Friday  
<http://oit.utk.edu/scc/default.html>

## **Thesis writing workshops**

Thesis writing workshops are offered each Fall and Spring semester by the Graduate School. Dates are announced at the beginning of each semester on the Graduate School web page: <http://gradstudies.utk.edu>.

## **University housing**

The Department of University Housing provides multi-family housing for married students, single parents, graduate students, advanced professionals and non-traditional undergraduate students. The University maintains modern residential facilities that can be rented at modest cost. These facilities include one, two, and three bedroom apartments in four apartment communities located within a three-mile radius of the campus. Kingston and Laurel Apartments, located within walking distance to campus, are high-rise style and the two remaining apartment communities (Golf Range, Sutherland), are garden style apartments. Off-campus housing is available at various prices and distances from campus. Housing assignments in these communities are made on a first-come, first-served basis, according to the date the student's application materials are received. Requests for transfer are processed when space becomes available, and after all first-time applicants have been satisfied. Information about University and off-campus housing can be found at: <http://uthousing.utk.edu/>.

## **Keys to UT facilities**

Graduate students are assigned keys for Plant Science Buildings, laboratories and greenhouses they will be working in. To obtain keys, please fill out key request forms with the principal secretary in PS. Keys will be cut and signed for at Aconda Court and students will have to pick them up personally. For security purposes, our students are expected to maintain a very exclusive and intimate relationship with their keys!

## **Campus police**

The University of Tennessee police officers are duly commissioned State of Tennessee, Knox County and Knoxville City police officers. As such, UT Police officers have full police powers in the City of Knoxville, Knox County and on any other property contiguous to property of The University of Tennessee.

The University of Tennessee Police Department provides basic police services to Tennessee's largest university. The department's main objective is to provide a safe campus for students, staff, faculty and visitors. UT Police officers perform a variety of tasks, which include: Investigation of criminal activity, apprehension of criminals, accident and fire response, traffic enforcement, money transports and security for special events. The UT Police Department also offers posters, brochures, and seminars on a variety of topics; property engraving; statistical information; and many other services through the UT Crime Prevention Program. The UT Police Department reports to the Senior Associate Vice Chancellor for Finance and Administration.

UT Police Department  
1101 Cumberland Avenue  
Knoxville, Tennessee 37996  
Telephone: (865) 974-3114 (*non-emergency*) or (865) 974-6631  
Emergency: 911  
Web Page: [www.utpolice.org](http://www.utpolice.org)

## **UT Intercollegiate athletics & student organizations**

UT students have access to an extensive diversity of intercollegiate athletics and student organizations. Many of these are detailed in *Hilltopics; the Student Handbook*. View the most recent version of *Hilltopics* at:

<http://dos.utk.edu/hilltopics>

## **Local & Regional Activities**

### **Metro Pulse's "Best of Knoxville" Issue**

*Knoxville residents vote for their favorite restaurants, movie theaters, parks, etc. in an annual "Best of Knoxville" listing:*

Published by Knoxville's **Metro Pulse** (Dr. Klingeman has 2006 picks.)

See: [http://www.metropulse.com/articles/2006/16\\_17/cover\\_story.shtml](http://www.metropulse.com/articles/2006/16_17/cover_story.shtml)

### **Knoxville Brewer's Jam**

*Knoxville and regional microbrew aficionados prepare their favorite ales, lagers & pilsners for a one-day tasting. The Brewer's Jam has become an annual event with ticket sales benefiting regional charity groups. Food and Music are also featured.*

See: <http://www.communitysharetn.org/knoxvillebrewersjam/>

### **Boomsdays & fireworks on the River (Labor Day Weekend)**

*Now a 3-day celebration of Labor Day-related music, food and activities throughout Knoxville culminating in a fireworks display on the river. The Henley Street bridge is the launch platform.*

See: <http://cityofknoxville.org/events/boomsday/default.asp>

### **Ice Bears Hockey**

*Winter Season: January to March at the Knoxville Colliseum.*

See: <http://www.knoxvilleicebears.com/>

### **Tennessee Smokies AA Baseball**

*The Tennessee Smokies are the Class AA Southern League affiliate of the Chicago Cubs. They play at Smokies Park in Sevierville off of I-40 East. For more information, call the Smokies at (865) 286-2300.*

See: <http://www.smokiesbaseball.com/>

### **"Sundown in the City" (Thursday nights, Spring & Fall, Market Square)**

*Free music on market Square featuring many internationally recognized bands and musicians. Local and regional musicians open the shows starting shortly after 5 pm.*

See: <http://sundowninthecity.com/>

**APPENDIX A**  
**Department of Plant Sciences**  
**Graduate Student Handbook**

**EVALUATING STUDENT PROGRESS**

Graduate education requires continuous evaluation of the student. In addition to the requirement for maintenance of a 3.0 grade-point average (grade of B) and satisfactory completion of other formal requirements for the degree, students are subjectively evaluated by the faculty for their aptitude in the field of study. Flexibility within the graduate program allows variation among individual courses of study, but students are expected to make satisfactory progress in acquiring knowledge of a subject area and in completing their degree requirements.

The student and major professor should have a mutual understanding of what each is expected to contribute to the program of graduate study. Once the student is enrolled in our department, the student and major professor are required to schedule a conference for the purpose of reviewing the program at least annually. The student should take the initiative in scheduling this conference. This conference may include the graduate committee, or only the student and major professor.

As a means of monitoring student progress, the student must complete the Graduate Student Progress Checklist (*below*), obtain appropriate signatures, and submit a copy of the form to the Plant Sciences Departmental Graduate Committee. This report will be due by January 31 of each year, and will become part of the student's departmental file. While many informal conferences will occur during the course of study, these may not present an opportunity for review and critique of the entire program. It is expected that the progress report will provide the impetus for both student and major professor to examine the graduate program in detail, review progress to date, and establish goals and timetables. This is also an appropriate time to discuss any problems and possible changes in the student's program.

The Departmental Graduate Committee will review the progress reports, and recommend action to the major professor or Department Head, as appropriate. When either the student or major professor becomes concerned that a program of graduate study is not progressing satisfactorily, a conference should be held to review the program and progress of the student. A student's graduate study may be terminated when progress is unsatisfactory. Students may appeal actions which they think affect them unfairly. Appeals normally are made through the Department Head to the University administration. The *Graduate Council Appeal Procedure* should be consulted. The student handbook, *Hilltopics*, contains statements of UTK standards of conduct and of all disciplinary regulations and procedures.

**By January 31** of each year of graduate study, students are required to schedule a conference with their advisor(s) to evaluate student progress. This form will be completed (with signatures) and a copy submitted to the Departmental Graduate Program Committee Chairperson following that conference. The student's graduate advisory committee may participate in preparing the progress report and may recommend action when appropriate.

Name \_\_\_\_\_

Degree \_\_\_\_\_

Semester you began program \_\_\_\_\_

Proposed graduation date \_\_\_\_\_

Major professor \_\_\_\_\_

Other advisory committee members \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Thesis title \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Cumulative GPA: \_\_\_\_\_

DATE

Selection of major professor and field of study. \_\_\_\_\_

First meeting of students graduate advisory committee (1st semester) \_\_\_\_\_

Academic program (coursework) approved by Grad Advisory Committee \_\_\_\_\_

Research proposal submitted to Grad Advisory Committee (2d semester) \_\_\_\_\_

Graduate seminar (PS 504) on proposed research, (by second semester) \_\_\_\_\_

"Final-form" thesis draft to committee (at least 2 weeks before exam) \_\_\_\_\_

Graduate seminar (PS 504) defending research \_\_\_\_\_

Final oral, defense examination \_\_\_\_\_

Submission of thesis to Graduate School \_\_\_\_\_

Signature of Student \_\_\_\_\_ Date \_\_\_\_\_  
=====

Major Professor

Recommendation/comments:

Signature \_\_\_\_\_ Date \_\_\_\_\_  
=====

Grad Committee Chair

Actions/recommendations:

Signature \_\_\_\_\_ Date \_\_\_\_\_

## **APPENDIX B**

### **Plant Sciences Graduate Student Award Incentive Program**

#### ***What Is It?***

In 2004, Plant Sciences Faculty and donors established a Plant Sciences Departmental Account allowing us to reward exceptional efforts of PS graduate students who win monetary prizes for oral & poster presentations at Regional, National, & International professional meetings. The Award Incentive Program will match (up to \$300) monetary prizes awarded to PS graduate students.

#### ***Why It Was Established:***

- This program is intended to promote Professional Association membership and encourage student participation in oral & poster competitions at Regional, National, & International professional meetings (*to see a list of several organizations that extend these types of opportunities, visit [http://plantsciences.utk.edu/grad\\_award\\_match.htm](http://plantsciences.utk.edu/grad_award_match.htm)*)
- As peers, PS Faculty would like to acknowledge the exceptional accomplishments of our graduate students
- We expect this program to help showcase the successes of the PS Department

#### ***Current Limitations:***

This new program has limited resources from which matching award funds are drawn. At least initially, we must limit the program.

- At present, only Plant Sciences MS and PhD Students whose Major (advising) Professor is from Plant Sciences are eligible for matching awards
- The Department of Plant Sciences' Account will match individual awards up to \$300 per year per student project
- In the case of team-projects, award match applies only to the presenter
- Matching funds do not apply to Department, Institute or University awards
- Matching funds do not apply in the case of travel, scholarship or fellowship awards
- At least initially, awards from State-based professional associations are not eligible to receive matching funds
- Currently we limit awards to 3 per student on separate projects undertaken during each graduate Plant Sciences degree program

#### ***How It Works:***

- PS graduate students must win a cash award for an oral or display presentation given at Regional, National, and International professional meetings
- Students who win awards should work with their Major Professor and the PS graduate coordinator to initiate the process with the help of PS Department accountants
- Miscellaneous income sources (per individual) are legally limited to \$300 per year
- The award must be taxed as regular income
- If the recipient is an active UT employee (student worker or on-assistantship) they must be paid via the UT Payroll System using an Additional Service pay form. If the recipient is not a UT employee, they must submit a T-27 form through PS Accounting Office

For more information, visit: [http://plantsciences.utk.edu/grad\\_award\\_match.htm](http://plantsciences.utk.edu/grad_award_match.htm)

To begin requisite paperwork to establish a matching award, contact Dr. Bill Klingeman, 974-7964 or [wklingem@utk.edu](mailto:wklingem@utk.edu)