Undergraduate Education Department of Agronomy Purdue University

> **CSREES** Review February 2 - 6, 2009

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provide to students the foundation, motivation, and continued support for a lifetime of learning and to stimulate their interest in serving society 0 ue Au

Where we are now: Overview of the Program
 168 students in nine options (majors) Declined 5% since last review
 79% male, 82% from Indiana, and 8% minority / international
10.8 faculty teaching FTE's
4.5 graduate TA FTE's
 SAT scores average 1105 compared to the College at 1079; University at 1145
 98% of alumni have indicated satisfaction with their undergraduate experience (2003)

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Enrollments at F	Purdue an	d Other U	niversities
<u>University</u>	Enrollment	Trend (3 yr.)	Teach-FTE's
UIUC - crops	93	Steady	7.6
UIUC - nres	12	Steady	2.0
Iowa State - agry	149	Increase	11.3
MSU - crops/soils	89	Decrease	8.9
MN – agry/plt sci.	58	Increase	4.7
MN - soils/env.	260	Steady	5.6
OSU - hort,/crop	220	Steady	7.9
OSU - soils,/env.	340	Steady	13.5
Nebraska - agry	175	Decrease	10.9
PSU- env./soils/turf	187	Increase	11.8
Purdue - agry	168	Increase	10.5
Wisconsin - soils	16	Decrease	5.4
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Comments from the Last Review

- Reviewers complimented the department on:
 - Strong undergraduate program
 - Diversity of academic offerings (options/majors)
 - Positive interaction of faculty and staff with students
 - Good integration of UG students into department
 - Mentoring programs for teaching assistants
 - K 12 Outreach Programs
 - International components in the curriculum
- All of these areas have been maintained or strengthened - examples to follow.....

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Actions Taken to Strengthen These Areas

- Hired two faculty with primary teaching appoint. Bigelow (Turf) / Snyder (Crops)
- Hired 14 new faculty that have strengthened curricula in the areas of turf science, hydrology, soil fertility, crop science, land resources, meteorology and climatology, pedology, remote sensing, international programs, plant physiology, and genetics
- New faculty have shown a strong commitment to undergrad education as evidenced by new courses, quality instruction, and advising

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Actions Taken to Strengthen These Areas

- Mentoring of graduate student teaching
 - More graduate students serving as TAs
 - 17 TAs earned the Graduate Teaching Certificate
 - 5 TAs earned Advanced Graduate Teaching Certificate
 - 3 TAs awarded the Grad School Outstanding Teaching Award
 - 3 TAs inducted into the Purdue Teaching Academy
- K-12 Outreach expanded by workshops and website: > 7,000 teachers and students impacted
- Six new study abroad courses offered in Agronomy

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Recommendations from Reviewers

- 1. Conduct comprehensive review of each option with alumni and employer input
- 2. Encourage greater faculty involvement in advising and curriculum development
- 3. Increase use of instructional technologies to include developing Internet and distance learning opportunities
- 4. Expand leadership, research, and internship opportunities for students

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1&2. Curricular Review / Faculty Input

- Established a Department Curriculum Committee
- · Conducted a survey of alumni
- Solicit annual input from the Agronomy Advisory Council and graduating seniors
- · Reviewed all options with input from all faculty
- Major changes in Plant Breeding and Genetics and Turf Science options
- · Capstone courses established in Department / College
- College and Department developed learning outcomes for academic programs – assessment processes still being studied

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Environmental Science Curricula

- Purdue conducted extensive review of environmental research and academic programs: good depth and breadth; however, students confused about access
- New Pre-Environmental Studies Program
 Serves as a portal for students interested in
 environmental issues
 - Orientation course gives students an understanding of campus-wide programs
- NRES revised (interdisciplinary CoA program)
- Faculty leadership from Agronomy / 68 students

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3. Instructional Technologies

- First Agronomy distance ed course developed: – Turf Management (Agry 210Y)
- Soils Resource Center instructional units reworked for computer directed learning
- Student response devices (CPS) used in a number of courses and workshops
- Adobe Connect and Adobe Presenter used for Internet delivery of learning modules and for On-line tutoring
- Blackboard-Vista is portal for most courses

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4. Leadership, Research, Internship Opportunities for Students

- College Leadership Certificate
- Four Clubs Agronomy Club, Turf Club, Soil and Water Conservation Club, Environmental Science Club
- Leadership positions held and honors received by our students at the national level
- Agronomy Ambassadors
- CoA Dean's Scholars Program / Honors
 Special problems courses increased from 11 to 25 annually
- CSSA Golden Opportunities Program 3 students from Purdue
- 100% of students conduct professional experiences

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Fo	cus: Developing Tomorrow's Leaders
De	evelopmental Areas:
1.	Technical Expertise and Applications
2.	Communication and Interpersonal Skills
3.	Appreciation of the Humanities / Arts
4.	Leadership and Teamwork Skills
5.	Ethical Practices
6.	Business / Management Skills
7.	International and Cultural Understanding
8.	Personal and Social Responsibility
9.	Desire for Continued Learning
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1. Technical Expertise and Appl (approx. 70% of credits)	ications:)
	# of students
 Agronomic Business and Marketing 	33
 Plant Genetics and Plant Breeding 	19
Soil and Crop Science	14
Soil and Crop Management	21
Turf Science	58
Applied Meteorology	18
Environmental Soil Science	2
International Agronomy	2
Associate Degree	1
ΤΟΤΑ	L = 168
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2. Communication and Interpersonal Skills

- Engl 106 / 420 Composition and Business Writing / plus 3-credit elective
- Com 114 Public Speaking
- Video tape students interviewed by professional Human Resource persons (Agry 498)

- Team projects, case studies, and discussions - used in many Agronomy courses
- Example of discussions in Introductory Soil Science - required of all majors

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3. Appreciation of Social Sciences / Humanities / Arts

- 21 credits
- 18% of graduation credits
- · Selected readings related to history / agriculture
- 9 credits of these are international understanding





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4. Leadership and Teamwork Skills • College of Agriculture Leadership Certificate Four student clubs in Department (and 800 more across campus) - Agronomy Club - Soil and Water Conservation Club - Turf Club - Environmental Science Club • Agronomy Ambassadors Program Internship opportunities • **Departmental work opportunities Honors Program** • 0 Purdue Agreeomy



Environmental Science Club • guest speakers, field trips, and community service projects... • Interdepartmental Student Organization



Soils and Crops Judging TeamsSince 2004 Team has
placed 1st in RegionalsHighly Competitive
in Kansas City (4th)
and in Chicago (3td)2003, 2006, 2007Image: State Sta

Agronomy Ambassadors

- Learn about all areas of Agronomy
 Meet faculty, other students
- Develop interpersonal skills
- Gain leadership skills
- Provide information and public relations to visitors – students, parents, scientists,

advisory council



Honors Research

- Hands-on research
 experience
 - Formulate objectives
 - Apply scientific principles
- All areas in Agronomy & related disciplines
- Co-authorship
 - Oral presentations: regional/national meetings
 - Journal publications



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5. Ethical Practices

- Freshman and Senior Seminars have programs on ethics in the workplace
- Undergraduate research involves mentors discussing with students ethical scientific practices
- Each course syllabus stresses honesty and maintaining integrity with other students
- Each faculty member treats students with respect and fairness role model
- Club advisors and coaches stress honesty and commitment to positive interactions with others

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7. International and Cultural Understanding

- CoA Multicultural Awareness (3 credits)
- Numerous courses including Agry 285 (Crop Adaptation and Distribution) Agry 460 (Contemporary Issues in Agriculture) and Agry 350 (Global Awareness)
- International minor in the College or an International Agronomy major in the Department
- Study Abroad Opportunities offered by Agronomy Faculty (8 new courses)

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9. Desire for Continued Learning

- Providing a foundation of knowledge that fosters increased learning
- Motivating students through faculty excitement for the subject matter and quality instruction
- Encouraging students to approach learning in multiple ways
- Providing continued support for learning through web-based resources

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Where we want to go:

Continue the new initiatives since 2002 and

- 1. Maintain a sense of shared mission to the scholarship and value of teaching in the department
- 2. Provide strong, forward-looking and innovative undergraduate education programs that attract a diverse, high-quality student body
- 3. Develop educational programs that reach beyond the campus to K-12 and distance ed students

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How we will get there: 1. Shared Teaching/Learning Mission

- Revisit Departmental Strategic Plan Preeminence
 in Undergraduate Education
- Maintain core group of faculty with >60% Teaching
- · Regular review of each course syllabus
- Institutionalize a peer evaluation system of courses and instructors
- Mentor graduate TAs future faculty!
- Foster scholarship of teaching and acquisition of external funding for education initiatives

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2. Innovative educational programs that attract diverse, high quality students Review curricula on rotating basis Conduct elumpi surveys feeused on 2.5.10 and 20.

- Conduct alumni surveys focused on 2, 5, 10, and 20 year alumni groups and the employers
- Develop assessment procedure for current and future learning outcomes
- Consider a new Soil and Hydrologic Sciences option replacing the Environmental Soil Science option
- Develop a Sustainable Food Systems minor in the College of Agriculture
- Develop ways of incorporating the departmental Grand Challenges into our courses and curricula

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	Responses (%)					
	SA	Α	U	D	SD	NA
A. My academic advisor was helpful in developing my academic plan of study.	58	30	6		3	3
B. My academic advisor was available to help when I needed assistance.	61	30	3	3		3
C. The courses in Agronomy were valuable to me.	55	42		3		
E. I felt the Agronomy faculty and staff wanted me to be successful.	79	21				
F. Agronomy faculty were available for discussion and assistance outside of						
class.	76	21				3

	Responses (%)					
	SA	Α	U	D	SD	NA
P. I value the education I received from the Agronomy Department	82	18				
R. My education made me better at: Understanding Concepts / Principles	55	42	3			
Problem solving skills	36	48	15			
Leadership skills	50	31	16	3		
Working cooperatively (Teamwork)	58	42				
Written communication skills	36	45	18			
Oral communication skills	45	45	9			
Professional preparation	73	24	3			
Understanding other cultures	42	45	10	3		
Developing life-long learning skills	55	45				