

: AGRONOMY, BS

In Workflow

1. U Program Review (dforgacs@illinois.edu; eastuby@illinois.edu; aledward@illinois.edu)
2. 1802 Committee Chair (arrayburn@illinois.edu)
3. 1802 Head (asdavis1@illinois.edu)
4. KL Committee Chair (bjgray2@illinois.edu)
5. KL Dean (aball@illinois.edu)
6. University Librarian (jpwilkin@illinois.edu)
7. Provost (kmartens@illinois.edu)
8. Senate EPC (bjlehman@illinois.edu; kmartens@illinois.edu; moorhouz@illinois.edu)
9. Senate (jtempel@illinois.edu)
10. U Senate Conf (none)
11. Board of Trustees (none)
12. IBHE (none)
13. DMI (eastuby@illinois.edu; aledward@illinois.edu; dforgacs@illinois.edu)

Approval Path

1. Thu, 30 Jul 2020 19:29:47 GMT
Deb Forgacs (dforgacs): Approved for U Program Review
2. Tue, 04 Aug 2020 13:20:20 GMT
Lane Rayburn (arrayburn): Approved for 1802 Committee Chair
3. Tue, 04 Aug 2020 14:56:53 GMT
Adam Davis (asdavis1): Approved for 1802 Head
4. Fri, 04 Sep 2020 20:21:59 GMT
Brianna Gregg (bjgray2): Approved for KL Committee Chair
5. Tue, 08 Sep 2020 15:27:57 GMT
Anna Ball (aball): Approved for KL Dean
6. Tue, 08 Sep 2020 16:41:35 GMT
John Wilkin (jpwilkin): Approved for University Librarian
7. Tue, 08 Sep 2020 18:56:41 GMT
Kathy Martensen (kmartens): Approved for Provost

New Proposal

Date Submitted: Wed, 22 Jul 2020 17:24:19 GMT

Viewing:: Agronomy, BS

Changes proposed by: Scott Bartlett

Proposal Type

Proposal Type:

Major (ex. Special Education)

Proposal Title:

If this proposal is one piece of a multi-element change please include the other impacted programs here. *example: A BS revision with multiple concentration revisions*

This is a multi-element change.

1) Proposal to Establish a new Bachelor of Science degree with a major in Agronomy (B.S. in Agronomy) in the Department of Crop Sciences, College of Agricultural, Consumer and Environmental Sciences (Key 960).

- 2) Deactivate the Crops concentration (Key 763).
- 3) Deactivate the Plant Protection concentration (Key 765).
- 4) Deactivate the Biological Sciences concentration (Key 761).

EP Control Number

EP.21.013

Official Program Name

Agronomy, BS

Effective Catalog Term

Fall 2021

Sponsor College

Agr, Consumer, & Env Sciences

Sponsor Department

Crop Sciences

Sponsor Name

A. Lane Rayburn

Sponsor Email

arayburn@illinois.edu

College Contact

Brianna Gregg

College Contact Email

bjgray2@illinois.edu

Program Description and Justification

Provide *abrief* description and justification of the program, including highlights of the program objectives, and the careers, occupations, or further educational opportunities for which the program will prepare graduates, when appropriate.

Many students are highly interested in acquiring employable skillsets in sustainable agriculture production solutions to address urgent global challenges to food security and environmental sustainability. The proposed new Bachelor of Science in Agronomy degree incorporates courses in crop sciences, plant biology, soil pest management, plant protection, environmental quality and data analysis to provide a comprehensive education in agronomy. This interdisciplinary curriculum prepares students for careers in a variety of different fields. This major also allows enough flexibility for students to take courses in various disciplines within the 126 total hours.

The proposed new degree is a combination of three concentrations within the Bachelor of Science in Crop Sciences degree program for more than 10 years: Crops, Plant Protection, and Biological Sciences. This new major has the advantage of consolidating relatively low enrollments across these four concentrations in one, cohesive major. Additionally, this major addresses a need identified by a recent departmental external review.

Corresponding Degree

BS Bachelor of Science

Is this program interdisciplinary?

No

Academic Level

Undergraduate

Will you admit to the concentration directly?

No

Is a concentration required for graduation?

No

CIP Code

011102 - Agronomy and Crop Science.

Is This a Teacher Certification Program?

No

Will specialized accreditation be sought for this program?

No

Institutional Context

University of Illinois at Urbana-Champaign

Describe the historical and university context of the program's development. Include a short summary of any existing program(s) upon which this program will be built.

Explain the nature and degree of overlap with existing programs and, if such overlap exists, document consultation with the impacted program's home department(s).

In Spring 2020, 27 out of 119 total Crop Sciences students (22.7%) were enrolled in the four concentrations that are being consolidated into the proposed major. In a self-evaluation of our curriculum and through an external review of the department, we determined that a lack of a comprehensive offering of agronomy, the science of agricultural production, is limiting student enrollment in the program and not taking advantage of key employment

opportunities. The creation of this new major would enhance student identity, provide greater prominence to this area of diverse expertise in the Crop Sciences, and address student needs while preparing them with skillsets for known employment opportunities in the field of agriculture.

University of Illinois

Briefly describe how this program will support the University's mission, focus and/or current priorities. Demonstrate the program's consistency with and centrality to that mission.

Our program in Agronomy addresses the University of Illinois mission as a land grant institution by providing education on and putting knowledge to work on agricultural production. We anticipate that increasing our number of B.S. graduates will increase our regional and national standing as a leader in the agricultural production field, and would help us fortify current and develop new corporate partnerships to support student education and research efforts.

Since we have information regarding student enrollment in the corresponding concentration for the past 20 years, we will be able to assess whether the new degree program results in increased student enrollment.

State of Illinois

Indicate which of the following goals of the Illinois Board of Higher Education's Strategic Initiative are supported by this program: (choose all that apply)

Integration of Educational, Research and Innovation Assets - Better integrate Illinois' educational, research and innovation assets to meet economic needs of the state and its regions.

Describe how the proposed program supports these goals.

Integration of Educational, Research and Innovation Assets: The Crop Sciences Department is already a leader in developing superior employees/leaders in the field of plant biotechnology. By more critically focusing the Agronomy core curriculum, the students graduating from this program will be more prepared and therefore more beneficial to potential employers. Having Agronomy as a major will also let more students self-identify with the program and therefore increase visibility, while also linking to employment opportunities that commonly advertise for 'agronomy' skillsets. It will also potential employers, including the department's traditional stakeholders, to more successfully identify our students with their true discipline. We anticipate that a major in Agronomy, which is offered by many of our peer and competing institutions (e.g., Iowa State, Purdue) will meet the demand for specific credentials and justify cost for students and their families.

Admission Requirements

Desired Effective Admissions Term

Fall 2021

Provide a brief narrative description of the admission requirements for this program. Where relevant, include information about licensure requirements, student background checks, GRE and TOEFL scores, and admission requirements for transfer students.

The minimum GPA for admission consideration is 2.50 (A=4.00). Transfer coursework equivalent to the University of Illinois courses listed in bold, red italics must be successfully completed prior to the desired term of entry.

Sophomore-level transfer admission requires completion of transfer coursework equivalent to the following University of Illinois courses:
CHEM 101, Introductory Chemistry or an introductory chemistry course with Lab
MATH 112, Algebra or higher¹

Junior-level transfer admission requires completion of transfer coursework equivalent to the following University of Illinois courses:
CHEM 102, General Chemistry I and CHEM 103, General Chemistry Lab I
CHEM 104, General Chemistry II and CHEM 105, General Chemistry Lab II

MATH 220, Calculus or MATH 234, Calculus for Business I

Describe how critical academic functions such as admissions and student advising are managed.

Our Undergraduate Recruiter engages with prospective and admitted students via marketing, recruitment events, campus visits, etc. Once students accept their offer of admission, our Academic Program Manager becomes their primary academic advisor and guides them through degree requirements. Additionally, students are assigned to faculty mentors for career, internship, research, and graduate school advising.

Enrollment

Number of Students in Program (estimate)

Year One Estimate

30

5th Year Estimate (or when fully implemented)

75

Estimated Annual Number of Degrees Awarded

Year One Estimate

0

5th Year Estimate (or when fully implemented)

30

What is the matriculation term for this program?

Fall

What is the typical time to completion of this program?

8 semesters

What are the minimum Total Credit Hours required for this program?

126

Delivery Method

This program is available:

On Campus

Budget

Will the program or revision require staffing (faculty, advisors, etc.) beyond what is currently available?

No

Resource Implications

Facilities

Will the program require new or additional facilities or significant improvements to already existing facilities?

No

Technology

Will the program need additional technology beyond what is currently available for the unit?

No

Non-Technical Resources

Will the program require additional supplies, services or equipment (non-technical)?

No

Resources

Faculty Resources

Please address the impact on faculty resources including any changes in numbers of faculty, class size, teaching loads, student-faculty ratios, etc. Describe how the unit will support student advising, including job placement and/or admission to advanced studies.

Current departmental teaching loads and class sizes are generally low, and the undergraduate-to-faculty FTE rate is less than 5. We therefore have the capacity to increase student enrollment without significant negative impacts on faculty resources. Current faculty who are teaching the three concentrations will be responsible for teaching this major.

Library Resources

Describe your proposal's impact on the University Library's resources, collections, and services. If necessary please consult with the appropriate disciplinary specialist within the University Library.

The library currently has a strong collection in the area of Agronomy which is currently used by our students, including the Funk Library. We do not anticipate a large impact.

Instructional Resources

Will there be any reduction in other course offerings, programs or concentrations by your department as a result of this new program/proposed change?

Yes

Please describe

Additional capacity currently exists within the departmental courses that will serve as core courses for the major, such that we anticipate a two-fold increase in current enrollment (from 10-15 to 20-30 students per cohort) would not significantly affect existing courses. Additional sections and/or offerings of certain core courses can be added as necessary.

The existing three concentrations under the BS in Crop Sciences major that would be addressed by the proposed Agronomy major will be gradually phased out as students currently enrolled in the program graduate or transfer to the new degree program, and would be eliminated once there are no longer any students enrolled in the concentration (by approximately 2024).

Does this new program/proposed change result in the replacement of another program?

No

Does the program include other courses/subjects impacted by the creation/revision of this program?

Yes

Required courses

IB 103 - Introduction to Plant Biology
IB 150 - Organismal & Evolutionary Biol
ACES 101 - Contemporary Issues in ACES
ACES 200 - ACES Transfer Orientation
NRES 201 - Introductory Soils

Explain how the inclusion or removal of the courses/subjects listed above impacts the offering departments.

This major will be supported by course offerings in the School of Integrative Biology (IB), and the Department of Natural Resources and Environmental Sciences (NRES). All of these courses are at the introductory level or serve as required courses for these programs, therefore they are offered regularly and have large capacities. Our concentration students currently take these courses, and thus we do not anticipate that the new degree program would have any significant impact on these courses.

Attach letters of support from other departments.

IB Letter of Support Email.pdf
NRES_support_letter_CPSC_Agronomy_Major.pdf

Financial Resources

How does the unit intend to financially support this proposal?

As this program is currently offered as a collection of four closely related concentrations under an existing major, the existing infrastructure exists with the Department of Crop Sciences to support the program.

Will the unit need to seek campus or other external resources?

No

Are you seeking a change in the tuition rate or differential for this program?

Yes

Market Demand

What market indicators are driving this proposal? If similar programs exist in the state, describe how this program offers a unique opportunity for students:

Many of our peer institutes with whom we compete for agricultural science students offer an Agronomy major. However, in Illinois there is no Agronomy major. According to the University of Wisconsin, only 61% of agronomy job openings are being met by qualified candidates. With the rise in technologies aimed at enhancing agricultural production (e.g., precision agriculture, digital agriculture), foundational knowledge in crop production systems provided by a major in Agronomy is anticipated to be important.

The U.S. Bureau of Labor Statistics projects a 7% increase in demand for agricultural scientists during the 2018-2028 period, which they classify as "faster than average". Within the jobs categorized as agricultural science, the classification of "soil and plant scientists" – the classification mostly closely aligned with agronomy – is projected to be 8%.

What type of employment outlook should these graduates expect? Explain how the program will meet the needs of regional and state employers, including any state agencies, industries, research centers, or other educational institutions that expressly encourage the program's development.

We anticipate that, similar to past graduates, our future graduates will readily find job opportunities in the agricultural production and research and development sector. Employment opportunities for agronomy majors include crop production and soil management, yield forecasting, precision farming, plant breeding, agricultural business and industry, agricultural service organizations, environmental and natural resource management, and farm management. Private sector include the seed, fertilizer, and agricultural chemical industries as field agronomists, crop and soil management specialists, research technicians, sales and marketing specialists, and production managers. Public sector (state and federal agencies) also employ agronomists as extension specialists, county extension directors, environmental and natural resource specialists, research associates, soil surveyors, soil conservationists, grain inspectors, integrated pest management, land appraisal, agricultural finance, and in other science-based professional positions.

What resources will be provided to assist students with job placement?

The departmental academic advising office offers general assistance to students regarding their university career, while ACES Career Services provides career-related assistance. Additionally, each student is assigned a Faculty Mentor in their first year to help prepare them for their future careers. Not only do Faculty Mentors provide specific career-related advice, they also assist students throughout their four years by guiding them to the most appropriate courses, helping them find and apply to internships or research programs, and serving as recommendation letter writers for post-graduation opportunities. We anticipate that our departmental post-graduation placement rate of >80% (including graduates either employed or pursuing advanced degrees) will remain high in the future.

Program Regulation and Assessment

Briefly describe the plan to assess and improve student learning, including the program's learning objectives; when, how, and where these learning objectives will be assessed; what metrics will be used to signify student's achievement of the stated learning objectives; and the process to ensure assessment results are used to improve student learning. (Describe how the program is aligned with or meets licensure, certification, and/or entitlement requirements, if applicable).

Not applicable.

Is the career/profession for graduates of this program regulated by the State of Illinois?

No

Program of Study

"Baccalaureate degree requires at least 120 semester credit hours or 180 quarter credit hours and at least 40 semester credit hours (60 quarter credit hours) in upper division courses" (source: <https://www.ibhe.org/assets/files/PrivateAdminRules2017.pdf>). For proposals for new bachelor's degrees, if this minimum is not explicitly met by specifically-required 300- and/or 400-level courses, please provide information on how the upper-division hours requirement will be satisfied.

All proposals must attach the new or revised version of the Academic Catalog program of study entry. Contact your college office if you have questions.

For new programs, attach Program of Study

Agronomy - Learning Outcomes.pdf

Catalog Page Text

Catalog Page Text: Description of program for the catalog page. This is not official content, it is used to help build the catalog pages for the program. Can be edited in the catalog by the college or department.

Agronomy is the fundamental agricultural science: managing multiple parts of agricultural systems to sustainability and economically meet the growing need for food, fuel and fiber. The agronomy major provides a foundation that by necessity integrates the science and practice of agricultural production through courses in plant biology, genetics, weed and pest management, soil science, environmental quality, and agricultural management practices. The program also offers many opportunities to participate in research and internships. This curriculum prepares students for careers in agricultural sciences as well as for entrance into graduate and professional schools. Our students pursue employment in scientific research or fields related to agronomy including crop consulting, soil and crop management, international food security and agricultural development, and science policy.

Statement for Programs of Study Catalog

General Education Requirements

Code	Title	Hours
Requirement		Hours
Composition I and Speech		6 to 7
RHET 105 & CMN 101	Writing and Research and Public Speaking	
OR		
CMN 111 & CMN 112	Oral & Written Comm I and Oral & Written Comm II	
Advanced Composition		3 to 4
Cultural Studies		9
Western/Comparative Cultures		
Non-Western Cultures		
US Minority Cultures		
Foreign Language	Third Level or Above	
Quantitative Reasoning I		4 to 5
MATH 220	Calculus	
or MATH 221	Calculus I	
or MATH 234	Calculus for Business I	

Quantitative Reasoning II		3
CPSC 241	Intro to Applied Statistics	
Natural Sciences and Technology		8
CHEM 102 & CHEM 103	General Chemistry I and General Chemistry Lab I	
CHEM 104 & CHEM 105	General Chemistry II and General Chemistry Lab II	
Humanities and the Arts		6
Social and Behavioral Sciences		7 to 8
ACE 100	Introduction to Applied Microeconomics ¹	
Total Hours for Gen Ed Requirements		46-50

Code	Title	Hours
ACES Requirements		0-2
ACES 101 or ACES 200	Contemporary Issues in ACES ACES Transfer Orientation	

Major Requirements

Code	Title	Hours
Non-Departmental Core Requirements		12
IB 103	Introduction to Plant Biology	4
IB 150	Organismal & Evolutionary Biol	4
NRES 201	Introductory Soils	4
Crop Sciences Core Requirements		13-14
CPSC 102	Foundational Skills in Crop Sciences	2
CPSC 112	Introduction to Crop Sciences	4
Internship or Research/Thesis (choose one):		2-3
CPSC 393 or HORT 393	Crop Sciences Internship Horticulture Internship	
CPSC 395 or HORT 395 or PLPA 395	Undergrad Research or Thesis Undergrad Research or Thesis Undergrad Research or Thesis	
CPSC 498	Crop Sci Professional Developmt	1
Agronomy Requirements		14
CPSC 212	Introduction to Plant Protection	4
CPSC 336	Tomorrow's Environment	3
CPSC 352	Plant Genetics	4
CPSC 382	Organic Chem of Biol Processes	4
CPSC 418	Crop Growth and Management	3
Major Electives		15
Choose from any 300- or 400- level CPSC, HORT, or PLPA courses, excluding: CPSC 393, HORT 393, CPSC 395, HORT 395 & PLPA 395.		

EP Documentation

DMI Documentation

Key: 960



COLLEGE OF AGRICULTURAL, CONSUMER & ENVIRONMENTAL SCIENCES

Department of Natural Resources and Environmental Sciences
W-503 Turner Hall, MC-047
1102 S. Goodwin Ave.
Urbana, IL 61801-4730

RE: Proposed Crop Sciences Major in Agronomy

July 21, 2020

Dear Dr. Rayburn,

The Department of Natural Resources and Environmental Sciences fully supports the proposed new major in Agronomy in the Department of Crop Sciences. One of our courses, Introductory Soils (NRES 201) will be a required course for the new major. We do not foresee this requirement as having any negative impacts on our department. NRES 201 will continue to be taught in both fall and spring semesters. Plus, Crop Science students in the current concentrations, which will be combined into the new major, already enroll in NRES 201. So, course capacity should not be an issue.

We look forward to working with Crop Sciences to make sure NRES 201 remains a valuable foundational course for your majors.

Best regards,

A handwritten signature in black ink that reads "Robert Lee Schooley".

Robert L. Schooley
Professor and Interim Head

From: [Downie, Stephen R](#)
To: [Rayburn, A Lane](#)
Cc: [Bartlett, Scott E](#)
Subject: Re: Agronomy, BS proposed by Crop Sciences
Date: Sunday, July 12, 2020 11:25:29 AM

Dear Dr. Rayburn,

The School of Integrative Biology (SIB) has reviewed your proposal to establish a new BS degree with a major in Agronomy (B.S. in Agronomy) in the Department of Crop Sciences, ACES. We understand that three concentrations will be deactivated simultaneously, and that this new major will require IB 103 (Introduction to Plant Biology) and IB 150 (Organismal and Evolutionary Biology). We have ample seats in both of these course and have the capacity to increase enrollment without significant negative impacts on faculty and other instructional resources. As you know, these two courses are offered regularly, and in response to the Covid-19 pandemic these courses will be offered online for the immediate future.

If you wish additional information, please do not hesitate to contact me. I wish you well in your new program.

Sincerely,
Stephen R. Downie
Associate Director of Academic Affairs
School of Integrative Biology

On 7/10/20 4:37 PM, Rayburn, A Lane wrote:

Dear Dr. Downie,

Crop Sciences is proposing an Agronomy, BS, Major (see attached). This new major is a transition from three concentrations to one major. This major requires IB 103 and IB 150. These courses will provide an excellent foundation for students in the proposed major.

We would appreciate an approval letter from you as soon as possible with regards the impact on your department.

Thank you for your time and consideration in this matter.

Sincerely,

Dr. A. Lane Rayburn
Professor of Cytogenetics
Undergraduate Program Coordinator
Department of Crop Sciences
University of Illinois
360 ERML, 1201 W. Gregory
Urbana, IL 61801
Telephone - 217 333-4374.
[http:// https://cropsciences.illinois.edu/people/profile/arayburn](http://https://cropsciences.illinois.edu/people/profile/arayburn)

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Stephen R. Downie, Professor
Associate Director of Academic Affairs | School of Integrative Biology
Director | GAANN Fellowships
Curator | University of Illinois Vascular Plant Herbarium (ILL)
Department of Plant Biology | 239 Morrill Hall | 505 S Goodwin Ave
University of Illinois at Urbana-Champaign | Urbana | IL 61801-3707
Telephone: (217) 333-1275
Email: sdownie@illinois.edu
www.life.illinois.edu/downie/
www.life.illinois.edu/plantbio/

Agronomy

Learning Outcomes

1. Students will demonstrate proficiency in the areas of crop production, plant breeding, pathogen control, soil and nutrient management, genetics and genomics, environmental quality, and data analysis.
2. Students will gain leadership skills through team-based science in an experiential learning context to become leaders in scientific fields.
3. Students will communicate agronomy content to the public using traditional and 21st century media platforms.
4. Students will discover how agronomy can be used as the foundation to solve global and regional food security challenge, and how agronomy is an ever-evolving field poised to meet the demand for food of a growing population.
5. Students will develop professional networks that will enhance future career choices.