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# **Proposal to the Senate Educational Policy Committee**

- **PROPOSAL TITLE:** Transfer and revision of the existing graduate degree program leading to an M.S. with a major in Plant Biotechnology with a Professional Sciences Master's concentration, from the Department of Plant Biology, College of LAS into the Department of Crop Sciences, College of ACES.
- SPONSOR: John A. Juvik, Professor and Director of Graduate Studies, Department of Crop Sciences, 333-1966, juvik@illinois.edu.
- COLLEGE CONTACT: Mary Lowry, Assistant Dean, ACES Academic Programs, 333-9391, lowry@illinois.edu
- **BRIEF DESCRIPTION:** The Department of Crop Science requests the transfer of the existing **graduate program with the Illinois Professional Sciences Master's Concentration (PSM) in the major in Plant Biotechnology** from the Department of Plant Biology in the College of LAS into the Department of Crop Sciences in the College of ACES. We will provide the graduate training required for the Illinois PSM in Plant Biotechnology, and the program will be jointly administered by the Department of Crop Sciences and the Illinois Professional Sciences Master's program, a unit of the Graduate College.

The Crop Sciences PSM in Plant Biotechnology will continue to primarily serve students seeking a terminal master's degree (i.e., not necessarily in route to the doctorate) as enhanced preparation for careers in plant biotechnology that call for both science- and business-related skills and responsibilities. The program will be a three-semester, one summer term, non-thesis, self-supporting MS degree program and require a minimum of 42 credit hours total: 32 hours of primarily plant-based biotechnology curriculum as specified in Appendix A, and 10 hours of business courses in the PSM concentration (Appendix B). In addition, students will be required to take 3 semesters of industry seminar series, and fulfill an internship. The biotechnology focus of our graduate degree program is closely linked to the chief interests of our industry partners and key employment opportunities for our graduates. The Illinois PSM in Plant Biotechnology should be particularly attractive to students seeking mid-level management positions in agricultural, medical, or environmental technology organizations, where they may serve as project managers in areas such as intellectual property, regulatory affairs, product development and marketing. Illinois PSM students may not hold assistantships or other tuition and fee waiver-generating appointments; statutory waivers and tuition scholarships are accepted.

Interested students will use the standard online admission process available through the Illinois PSM program in the Graduate College at http://psm.illinois.edu/apply. We will provide a link from our departmental website. Entry requirements include completion of a B.S. or B.A. degree at an accredited institution with a GPA of  $\geq$ 3.0 out of 4.0. The applications will be reviewed by the Crop Sciences Graduate Studies Committee made up of Crop Science faculty. This committee will send their recommendation for enrollment into the program to our department head and from there to the Graduate College.

**JUSTIFICATION:** Our justification for the transfer of the existing PSM Plant Biotechnology Program from Plant Biology into Crop Sciences is based on three factors:

1. Existing course content in Crop Sciences or cross-listed with IB will provide students enrolled in the program with the interdisciplinary training and expertise to move into careers involving biotechnology in the private and public sectors either in the US or internationally. As seen in Appendix A some of the courses offered in the original program were already being taught by faculty in Crop Sciences. We have been able to identify and offer new and complimentary classes in Crop Sciences to compensate for those no longer being offered in IB that will provide students in the program with rigorous interdisciplinary training in plant biotechnology with a broader range of course choice. A semester by semester plan of study appears as Appendix C.

2. Crop Sciences currently offers a non-thesis online M.S. program where students (or in some cases their employers) must pay for classes and tuition. This has been a very successful program where we currently have 33 enrolled students. Students are attracted to the online program because of the reputation of our department's graduate programs, faculty and courses. Students have used the online M.S. degree program to facilitate career opportunities or move into leadership and management roles in their companies and institutions. We feel our reputation and that of the University of Illinois will attract applicants to the PSM program in Plant Biotechnology. Each year we receive between 120-150 applications to our graduate degree program in Plant Biotechnology to those applicants that were not accepted into our traditional on-campus M.S. program.

3. With our strong programs in applied research and extension Crop Science faculty have developed ties with the major agricultural industries in the U.S. and abroad. Major agricultural companies like Monsanto, Dupont-Pioneer, Syngenta, Dow AgroSciences and others have recruited our graduate students to positions in the industry. These companies are interested in future hires of students with expertise in the area of biotechnology in addition to business skills. These companies currently provide a range of summer internships for undergraduate and graduate students in our program. We are in a position to identify summer internships for students in the PSM Plant Biotechnology program with the industry or with our faculty that will provide career opportunities following completion of their degree.

Convincing evidence that a biotechnology major and PSM concentration are of interest to prospective students in life science programs was acquired through a 2009 market interest survey conducted by the Department of Plant Biology in collaboration with Illinois Business Consulting (IBC). Note that the original questionnaire surveyed interest in a "PSM in Biotechnology" and thus is directly relevant to this program proposal. Nationwide, there are now 35 Professional Science Master's programs formally identified by the Council of Graduate Schools (CGS) as biotechnology-based PSM programs at colleges and universities. In June 2011, our Illinois PSM in Plant Biology was approved by the CGS PSM community (www.sciencemasters.com). Of note is the fact that our proposed broad-based **Illinois PSM in Plant Biotechnology** curriculum and our opportunities for industry-linked research projects is relatively unique and will serve to distinguish our program from among the biotechnology PSM programs nationwide.

By coupling sound, graduate-level science scholarship and practical skills with the professional business content that includes technology and innovation management, accounting and finance, project management, marketing and global strategy of the Illinois PSM concentration, students in the Illinois PSM in Plant Biotechnology will be prepared to take on responsibilities at the interface of science and business. Graduate candidates who gain interdisciplinary graduate-level expertise in biotechnology and well-defined links to industry needs will be positioned to successfully follow career tracks in these sectors. With sustained, direct ties to the technology-based sector, the Illinois PSM in Plant Biotechnology will produce students who bridge the transition from academia to industry.

#### **BUDGETARY AND STAFF IMPLICATIONS:**

- 1) Resources
  - a. How does the unit intend to financially support this proposal? We foresee no additional costs associated with the transfer of this program into the Department of Crop Sciences. We estimate that a maximum of 10-15 students will be enrolled in this program at any given time. A program coordinator will be appointed from the Crop Sciences faculty by our department head. This individual will serve as the advisor to the PSM Plant Biotechnology students and help in the selection of classes and arrangement of internships.
  - b. How will the unit create capacity or surplus to appropriately resource this program? If applicable, what functions or programs will the unit no longer support to create capacity? No needed changes. We have capacity in these required courses to accommodate these additional students.
  - c. Will the unit need to seek campus or other external resources? No.
  - **d.** Please provide a letter of acknowledgment from the college that outlines the financial arrangements for the proposed program. Attached as Appendix D.
- 2) Resource Implications
  - a. Please address the impact on faculty resources including the changes in numbers of faculty, class size, teaching loads, student-faculty ratios, etc. All of the courses listed in Appendix A are currently being taught by faculty with additional capacity for PSM students available. A letter of support from the Graduate College is included as Appendix E.
  - b. Please address the impact on course enrollment in other units and provide an explanation of discussions with representatives of those units. See attached letter from Professor Jim Dalling, the Department Head of Plant Biology, Appendix F.
  - c. Please address the impact on the University Library. No impact see attached letter, Appendix G.
  - d. Please address the impact on technology and space (e.g. computer use, laboratory use, equipment, etc.). Given that we expect the growth in the new program to be gradual for the first few years as it becomes established, the impact on resource requirements will be minimal. As numbers increase, the revenue generated as a result of the self-supporting nature of the program will support any required additional resources.

**DESIRED EFFECTIVE DATE:** Fall, 2018

CLEARANCES: (Clearances should include signatures and dates of approval, These signatures must appear on a separate sheet. If multiple departments or colleges are sponsoring the proposal, please add the appropriate signature lines below.)

Signatures:

Unit Representative ACES:

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College Representative ACES:

Jer appendix F Unit Representative LAS:

Date:

Date:

Date:

College Representative LAS:

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Graduate College Representative:

Date:

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#### Appendix A: Proposed Curricular Revisions

#### **Current Requirements for PSM in Plant Biotechnology in Department of Plant Biology**

Science electives	23			
IB 510	Discussions in Plant Biology (Biotechnology section, 3 semesters)	3		
	Individual Topics (6 max applied toward degree	6		
IB 590	(optional))			
IB 474	Plant Proteomics- Metabolomics - no longer	2		
IB 473	473 Plant Genomics			
IB 503	Methods/Application in Biotech - no longer offered	3		
PSM Concentratio	10			
PSM 555	PSM Internship (0 min)	0		
PSM Seminar <sup>2</sup>	0			
PSM 501	PSM Industry Seminar I			
PSM 502	PSM Industry Seminar II			
PSM 503	PSM Industry Seminar III			
Total Hours		42		
Other Requ	irements <sup>3</sup>			
Other requirement	s may overlap			
A concentration is	required.			
Minimum 500-leve	12			
Students must enr	oll full-time in the fall and spring terms (12 or			

# Revised Requirements for PSM in Plant Biotechnology in Department of Crop Science

Science electives	29	
CPSC 598	Seminar (Biotechnology section, 3 semesters)	3
	Advanced Studies in Crop Sciences (8 max applied	
CPSC 593	toward degree (optional and found in the Science	
	Electives list))	
PSM Concentrati	10	
PSM 555	PSM Internship (0 min)	0
PSM Seminar <sup>2</sup>	0	
PSM 501	PSM Industry Seminar I (0 min)	
PSM 502	PSM Industry Seminar II (0 min)	
PSM 503	PSM Industry Seminar III (0 min)	
BADM 589	Project Management (2 hr)	
BADM 595	Business Fundamentals (2 hr)	
FIN 500	Finance	
Take one of		
BADM 567	Process Management (2 hr)	
	Venture Funded Startups (1 hr plus an additional	
	business-related class for 1 or more hours)	
OF TE 567		42
		42
Other Requirer	nents	
	in required	
A concentration	is required.	
Minimum 500-le	evel Hours Required Overall:	12
Students must e	enroll full-time in the fall and spring terms (12 or	

Transfer credit from Illinois or other institutions is not permitted

Minimum GPA:

#### For required courses see life.uiuc.edu/plantbio/psm

<sup>2</sup> Students can opt to take the PSM seminar series for O credit (pass/fail) or 1 credit hour (letter grade). Credit hours for these courses do not apply towards either the 32 science hours or 10 business hours required for the degree.

<sup>3</sup> For additional details and requirements, please refer to the Plant Biology Department's online Graduate Handbook and the University's Graduate College Handbook. Transfer credit from Illinois or other institutions is not permitted

Minimum GPA:

1

2

3

3

#### See Science Electives list below

Students can opt to take the PSM seminar series for 0 credit (pass/fail) or 1 credit hour (letter grade). Credit hours for these courses do not apply towards either the 32 science hours or 10 business hours required for the degree.

3

For additional details and requirements, please refer to the Crop Science Department's online Graduate Handbook and the University's Graduate College Handbook.

Graduates are expected to be socially and politically literate to successfully manage workplace responsibilities and broader, discretionary responsibilities. The Illinois PSM seminars (PSM 501, 502, and 503) cover, in part, behavioral dimensions at the interface between science and business. Seminar topics include ethics and the responsible conduct of research; political and regulatory environments relative to new product development and intellectual properties; and the social and cultural environment of science-based enterprises.

The role of ethics and social responsibility, reflective of David Resnik's essay1 on research ethics, is embedded in the seminars around the themes of

- building public support for and trust in science,
- · promoting the aims of science and the scientific process,
- · providing the basis for professional accountability, and
- supporting collaborative work.

Issues such as product safety, environmental ethics, and medical and technology ethics may be explored along with emerging issues such as genetically modified organisms, stem cell research, and nanotechnology.

1 Resnik, David B. "What is Ethics in Research & Why is it Important?" NIH-NIEHS Bioethics Program. 26 October 2011. http://www.niehs.nih.gov/research/resources/bioethics/whatis/

Science Electives List CPSC 431/IB 440 Plants and Global Change (3hr) CPSC 440 Applied Statistical Methods I (4hr) CPSC 452 Advanced Plant Genetics (3hr) CPSC 453 Principles of Plant Breeding (4hr) CPSC 452 Plant Molecular Biology (2hr) CPSC 462 Plant Molecular Biology (2hr) CPSC 466/IB 477 Genomics for Plant Improvement (2hr) CPSC 541 Regression Analysis (5 hr) CPSC 542 Applied Statistical Methods II (5hr) CPSC 543 Applied Multivariate Statistics (4hr) CPSC 564 Molecular Marker Data Analyses (3hr) CPSC 565 Perl & UNIX for Bioinformatics (2hr) CPSC 566 Plant Gene Regulation (4hr) CPSC 567/IB 505 Bioinformatics & Systems Biol. (4hr)

CPSC 588 Plant Biochemistry (4hr)

HORT 447 Horticultural Plant Breeding (3hr) HORT 466 Growth & Development of Horticultural Crops(4hr)

IB 420/CPSC 484 Plant Physiology (3hr)
IB 421/CPSC 489 Photosynthesis (3hr)
IB 473/CPSC 467 Plant Genomics (1hr)
IB 513 Discussions in Plant Physiology (1hr)
IB 542/CPSC 538 Environmental Plant Physiology (4hr)

## **Appendix B:**

# Key Features of the PSM Concentration to be Coupled with the Required Courses of the M.S. in Plant Biotechnology

There are three components of the PSM concentration:

- 1. Business curriculum (courses listed in table below)
- 2. Industry seminar series (PSM 501, 502, and 503)
- 3. Internship (PSM 555)

#### **Business Curriculum (10 hours)**

The business curriculum is a sequence of courses delivered primarily by the College of Business. These courses, common across all PSM programs, are intended to provide PSM students with core business knowledge and skills. In addition, the courses also will provide students with the behavioral skills important in the business world, in particular, communication skills, team building, and conflict resolution. Furthermore, students will develop an understanding of ethics and intellectual property, as it applies to science and the biotech industry.

The 10 hour business curriculum is subject to change each year. The planned mix of courses will be a function of (1) PSM alumni and industry feedback on priority content, (2) evolving and emerging business issues of particular importance to PSM students, (3) availability of additional courses that service non-PSM programs that may have sufficient capacity to accommodate at least a portion of the PSM students, and (4), when feasible, allowing for individual differences in students' business interests and career aspirations. Therefore, the specific business curriculum courses listed here may or may not be offered to PSM students in a given cohort; however, students will be advised of the exact mix of courses available to them at the time of their enrollment.

Term /	Course	Title	Instructional	Credit
Semester			Unit	Hours
1 - Fall	BADM 595	Business Fundamentals	Business	2
1 - Fall	Choice of:			
	BADM 567	Process Management	Business	2
	TE 567	Venture Funded Startups	Technological	
		(an additional business class	Entrepreneurship	
		will be necessary to gain at		
		least 1 hour)		1
2 - Spring	FIN 500	Finance	Business	2
2 - Spring	BADM 589	Project Management	Business	2
3 - Fall	ACES 592	ACE 592 Law and Regulation	ACES	2
		for Scientists and Engineers		

#### Industry Seminar Series (3 semesters; 0-1 hours each)

The industry seminars provide opportunities for intellectual and social engagement for students across Illinois PSM programs. The seminars extend the professional preparation provided in the business curriculum. A key element of the seminar is invited guest lecturers in significant science-related leadership roles from business, industry, and

governmental organizations. Discussions will center on the problems and challenges introduced by the guest lecturer. All PSM students will enroll in a common seminar each semester, blending students from multiple disciplines to explore issues in common. Students in PSM programs have similar career aspirations and will thus benefit from exploring management, leadership, and career development issues together. Students will have the opportunity to learn about these issues not only as they relate to their specific area of study, but also to those in other Illinois PSM programs. PSM students will enroll in the seminar each semester in which they are enrolled in the cohort program (PSM 501, 502 and 503, respectively), excluding summer. In the final semester seminar, an emphasis is on learning from the internship experience during the preceding summer term and mentoring first semester students who are preparing for the internship. Students have the option of selecting 0 (S/U grading) or 1 (letter grading) credit hour for the industry seminar courses. The PSM 501, 502 and 503 PSM Industry Seminar Series classes and PSM 555 Internship are required for the PSM concentration but do not apply towards the 10 hours of business coursework required. Because these classes are a requirement for the degree, some students prefer that their academic record document their fulfillment of these requirements with courses that carry 1 credit hour and a letter grade. For other students, 0 credit hours and S/U suffices. Due to the absence of graduate-level science content, these classes will not be applied to the 32 hours of science coursework in the Plant Biotechnology major.

#### Internship (0-1 hours)

The internship is a necessary component of a professional graduate degree program with the goal to produce graduates proficient in their science area of study Graduated will have the knowledge, skills, and abilities to apply their proficiency to managerial and leadership challenges of business, government, and not-for-profits. Nationally, the majority of PSM programs require internships. Having completed two semesters of full-time graduate study before the internship, students will have had adequate science and business coursework to prepare them for work experiences in organizations. First semester students will be paired with third semester students for internship mentoring. Students will formulate plans for securing an internship early in their first semester of study as part of the required industry seminar series (PSM 501) and will implement plans no later than the beginning of their second semester of study. Students will evaluate their internship experience as part of their third semester industry seminar (PSM 503). Students complete one semester of full-time study after the internship is completed. The criteria for selection of internship companies and positions are determined for each student individually. In consultation with the program coordinator, students find internship companies and positions that match their individual career objectives and meet the learning goals of the program. The Illinois PSM, the academic program, and the student have joint responsibility for securing the internship. The program coordinator determines student deliverables and evaluation criteria and assigns course grades (S/U only). Students have the option of selecting 0 or 1 credit hour for PSM 555. The credit hour does not apply towards either the 32 science hours or 10 business hours required for the degree. For international students holding student visas, internships are considered curriculum practical training (CPT) and must be authorized in advance by International Student and Scholar Services.

#### Appendix C

#### Current Requirements for PSM in Plant Biotechnology In Department of Plant Biology (classes in bold were required)

Year 1: Fall Semester:

#### Plant Biotechnology coursework: 10 – 12 credit hours

- IB 472 Plant Molecular Biology (2hr)
- IB 473 Plant Genomics (1hr)
- IB 474 Plant Proteomics -Metabolomics (2hr) (no longer offered)
- CPSC 440 Statistics (4)
- IB 425 Plant Secondary Metabolism (no longer offered)
- IB 477 Genomics for Crop Improvement (2hr)
- IB 513 Discussions in Plant Physiology (1hr)
- CPSC 452 Evolutionary Genetics and Genomics (3hr) (no longer offered)
- IB 510 Discussions in Plant Biology; Biotechnology section (no longer offered)
- IB 590 Individual Topics (Research) (2hr)

#### **PSM Concentration**

- PSM 501, PSM Industry Seminar I (0-1hr)
- BADM 595 Business Fundamentals (2hr)
- BADM 508 Leadership and Teams (2hr)

Revised Requirements for PSM in Plant Biotechnology in Department of Crop Science (classes in bold are required)

#### Year 1: Fall Semester:

Science Curriculum (select 2-3 in consultation w/advisors) CPSC 462 Plant Molecular Biology (2hr) IB 473/CPSC 467 Plant Genomics (1hr) HORT 447 Horticultural Plant Breeding (3hr) CPSC 452/IB 478 Advanced Plant Genetics (3hr) CPSC 452/IB 478 Advanced Plant Genetics (3hr) CPSC 440 Applied Statistical Methods (4hr) CPSC 588 Plant Biochemistry (4hr) CPSC 588 Plant Biochemistry (4hr) CPSC 466/IB 477 Genomics for Crop Improvement (2hr) IB 513 Discussions in Plant Physiology (1hr) CPSC 541 Regression Analysis (5 hr) CPSC 564 Molecular Marker Data (3hr) CPSC 598 Wednesday Seminar (1hr) CPSC 489/IB 421 Photosynthesis (3hr) CPSC 593 Advanced Studies in Crop Sciences (1-8hr)

PSM Concentration PSM 501, PSM Industry Seminar I (0-1)

#### **Business Curriculum**

BADM 595 Business Fundamentals (2hr)Choice of:BADM 567 Process Management (2hr)TE 567 Venture Funded Startups (1hr)

#### Current Requirements for PSM in Plant Biotechnology In Department of Plant Biology (classes in bold were required)

#### Year 1 - Spring Semester:

#### Plant Biotechnology coursework: 10 – 12 credit hours

- IB 420 Plant Physiology (3hr)
- CPSC 566 Plant Gene Regulation (4hr)
- IB 440 Plants and Global Change (3hr)
- IB 505 Bioinformatics & Systems Biol. (4hr)
- CPSC 588 Plant Biochemistry (4)
- CPSC 563 Chromosomes (3hr)
- IB 590 Individual Topics (2hr)
- IB 510 Discussions in Plant Biology; Biotechnology section (no longer offered)
- IB 503 Applications/Methods in Biotech (no longer offered)

**PSM Concentration coursework** 

- PSM 502, PSM Industry Seminar II (0-1hr)
- BADM 589 Project and Process Management (2hr)
- FIN 500 Finance (2hr)

Year 1 - Summer Internship PSM 555 Revised Requirements for PSM in Plant Biotechnology in Department of Crop Science (classes in bold are required)

#### Year 1 - Spring Semester:

Science Curriculum (select 2-3 in consultation w/advisors) IB 420/CP 484 Plant Physiology (3hr) CPSC 566 Plant Gene Regulation (4hr) CPSC 431/IB 440 Plants and Global Change (3hr) CPSC 567/IB 505 Bioinformatics & Systems Biol. (4hr) CPSC 567/IB 505 Bioinformatics & Systems Biol. (4hr) CPSC 440 Applied Statistical Methods (4hr) CPSC 453 Plant Breeding (4hr) CPSC 593 Advanced Studies in Crop Sciences (1-8hr) CPSC 598 Wednesday Seminar (1hr) CPSC 542 Applied Statistical Methods II (5hr) CPSC 543 Applied Multiple Statistics (4hr) CPSC 565 Perl & UNIX for Bioinformatics (2hr) HORT 466 Growth & Development of Horticultural Crops(4hr)

*PSM Concentration* PSM 502, PSM Industry Seminar II (0-1hr)

BADM 589 Project Management (2hr) FIN 500 Finance (2hr)

Year 1 - Summer Internship PSM 555 Summer Internship (0-1hr) Current Requirements for PSM in Plant Biotechnology In Department of Plant Biology (classes in bold were required)

Year 2 - Fall Semester:

#### Plant Biotechnology Coursework: 10 – 12 credit hours

- IB 421 Photosynthesis (3hr)
- IB 477 Genomics for Crop Improvement (2hr)
- IB 424 Plant Development (no longer offered)
- IB 496 Readings in Development (no longer offered)
- IB 590 Individual Topics (Research)(2hr)
- IB 513 Discussions in Plant Physiology (1hr)
- IB 542 Environmental Plant Physiology (4hr)
- CPSC 452 Evol. Genetics and Genomics (no longer offered)

• IB 510 Discussions in Plant Biology;

**PSM Concentration Coursework** 

- PSM 503 PSM Industry Seminar III (0-1)
- NRES 598 Science and Regulatory Policy (no longer offered)

Revised Requirements for PSM in Plant Biotechnology in Department of Crop Science (classes in bold are required)

#### Year 2 - Fall Semester:

Science Curriculum (select 2-3 in consultation w/advisors) CPSC 489/IB 421 Photosynthesis (3hr) CPSC 466/IB 477 Genomics for Crop Improvement (2hr) CPSC 440 Applied Statistical Methods (4hr) HORT 447 Horticultural Plant Breeding (3hr) CPSC 593 Advanced Studies in Crop Sciences (1-8hr) IB 513 Discussions in Plant Physiology (1hr) IB 542/CPSC 538 Environmental Plant Physiology (4hr) CPSC 452 Advanced Plant Genetics (3hr) IB 473/CPSC 462 Plant Molecular Biology (2hr) **CPSC 598 Wednesday Seminar (1hr)** CPSC 541 Regression Analysis (5 hr) CPSC 588 Plant Biochemistry (4hr)

**PSM Concentration** 

PSM 503 PSM Industry Seminar III (0-1) ACE 592 Law and Regulation for Scientists and

Engineers

Graduates are expected to be socially and politically literate to successfully manage workplace responsibilities and broader, discretionary responsibilities. The Illinois PSM seminars (PSM 501, 502, and 503) cover, in part, behavioral dimensions at the interface between science and business. Seminar topics include ethics and the responsible conduct of research; political and regulatory environments relative to new product development and intellectual properties; and the social and cultural environment of science-based enterprises.

The role of ethics and social responsibility, reflective of David Resnik's essay<sup>1</sup> on research ethics, is embedded in the seminars around the themes of

- building public support for and trust in science,
- promoting the aims of science and the scientific process,
- providing the basis for professional accountability, and
- supporting collaborative work.

Issues such as product safety, environmental ethics, and medical and technology ethics may be explored along with emerging issues such as genetically modified organisms, stem cell research, and nanotechnology.

<sup>&</sup>lt;sup>1</sup>Resnik, David B. "What is Ethics in Research & Why is it Important?" NIH-NIEHS Bioethics Program. 26 October 2011. <u>http://www.niehs.nih.gov/research/resources/bioethics/whatis/</u>

#### Áppendix D

### UNIVERSITY OF ILLINOIS AT URBANA - CHAMPAIGN

College of Agricultural, Consumer and Environmental Sciences

Academic Programs 128 Mumford Hall, MC-710 1301 West Gregory Drive Urbana, IL 61801



November 30, 2017

To Whom It May Concern:

I am writing in support of the proposal to move the M.S. in Plant Biotechnology with the Professional Science Masters concentration to the Department of Crop Sciences in the College of Agricultural, Consumer and Environmental Sciences. As this is a self-supporting program, the department has neither requested or been granted any additional funding support from the college.

Crop Sciences already has a non-thesis online master's program that is very successful and has good enrollment, despite the fact that most of those students are not funded through assistantships. Many students receive funding support from their employers to pursue these degrees. That and the demand for graduates from the existing Crop Science non-thesis program lead us to believe this will be a very positive addition to the department and to the college. ACES is a strong proponent of the Illinois PSM program with currently four other majors available. If you have any questions about our support for the relocation of this program, please contact me.

Sincerely,

URahla

Prasanta Kalita Associate Dean Appendix E

# UNIVERSITY OF ILLINOIS

AT URBANA-CHAMPAIGN

Graduate College

204 Coble Hall 801 South Wright Street Champaign, IL 61820-6210



November 30, 2017

#### RE: IL PSM PLANT BIOTECHNOLOGY MAJOR DEPARTMENT/COLLEGE TRANSFER

Dear Senate Education Policy Committee:

The Illinois Professional Science Master's program supports the proposal by the Crop Science Department in the College of ACES to transfer the Plant Biotechnology major from the College of Liberal Arts and Sciences Plant Biology department. The Professional Science Master's is organized as a concentration of the major.

The IL PSM is strategically positioned for enrollment growth. The PSM seminar series (501, 502, 503) has capacity for increased enrollment. The Memorandum of Understanding with the Business College allows scaling business classes to meet enrollment, and provides funding from tuition to accomplish this.

If you have any questions or need additional information, please contact me at <u>natalieb@illinois.edu</u>.

Best,

stalie Bosecker

Natalie B. Bosecker Director Illinois Professional Science Master's

Appendix F

# UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

College of Liberal Arts and Sciences Office of the Dean



2090 Lincoln Hall 702 S. Wright Street, MC-448 Urbana, IL 61801

December 14, 2017

To Whom it May Concern:

We agree to the transfer of the MS in Plant Biotechnology with a Professional Science Masters from the Department of Plant Biology to the Department of Crop Sciences. The department has discussed the suitability and sustainability within the graduate degree programs we offer and concluded that we can no longer offer the support for the program. As the attached proposal outlines, the Department of Crop Sciences is equipped to house and administer the degree program. The Department of Plant Biology and School of Integrative Biology agree to the listing of the following IB courses as electives for the students in the degree: IB 420, IB 421, IB 473, and IB 513. We have room in these courses for the anticipated 10-15 students Crop Sciences anticipates.

Sincerely,

J.W. Dalling. Carla E. Carens

Jim Dalling Professor, Head Plant Biology

Carla Caceres Professor, Director School of Integrative Biology

Killy Right

Kelly Ritter Professor, Associate Dean College of Liberal Arts & Sciences

#### Appendix G

#### UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

University Library Office of University Librarian and Dean of Libraries 230 Main Library, MC-522 1408 West Gregory Drive Urbana, IL 61801



December 22, 2017

John (Jack) A. Juvik Department of Crop Sciences 1201 W. Gregory Drive, #307 M/C 051

Dear Prof. Juvik:

Earlier this week, the University Library received a proposal from the College of ACES outlining their plans to transfer the Plant Biotechnology PSM program from Plant Biology to Crop Sciences.

Based upon the documents received and reviewed by Sarah Williams in the Funk ACES Library, it is our belief that there will be no impact on the University Library. We are already supporting this program and see no meaningful changes in our operations as a result of this move.

If additional services or materials are required as the programs further develop, we will be happy to discuss those needs as they emerge.

Sincerely,

Willin H. Mischo

William H. Mischo Acting University Librarian and Dean of Libraries Head, Grainger Engineering Library Information Center Berthold Family Professor in Information Access and Discovery

e-c: Mary Lowry, Assistant Dean for Student Success, Agr, Consumer, & Env Sei Admn Thomas Teper Sarah Williams

## UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

EP.18.51

Office of the Provost and Vice Chancellor for Academic Affairs Swanlund Administration Building 601 East John Street Champaign, IL 61820



March 1, 2018

Gay Miller, Chair Senate Committee on Educational Policy Office of the Senate 228 English Building, MC-461

Dear Professor Miller:

Enclosed is a copy of a request from the College of Agricultural, Consumer and Environmental Sciences and the College of Liberal Arts and Sciences to:

- Transfer the Master of Science in Plant Biotechnology, Professional Science Masters Concentration from the Department of Plant Biology in the College of Liberal Arts and Sciences to the Department of Crop Sciences in the College of Agricultural, Consumer and Environmental Sciences; and
- 2) Revise the Master of Science in Plant Biotechnology, Professional Science Masters Concentration

Sincerely,

Costing Montine

Kathryn A. Martensen Assistant Provost

Enclosures

c: A. McKinney J. Hart A. Edwards E. Stuby A. Elli K. Ritter M. Lowry J. Juvik

#### UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

#### **Graduate College**

110 Coble Hall 801 South Wright Street Champaign, IL 61820-6210

**Executive Committee** 

2017-2018 Members

Wojtek Chodzko-Zajko Dean & Chair Graduate College

Members

Conrad Bakker Art & Design

Zachary Berent Graduate Student, Mechanical Science & Engineering

Xialoing Chen Accountancy

Kent Choquette Electrical and Computer Engineering

Eleanor Courtemanche English

Luisa-Elena Delgado Spanish & Portuguese

George Gasyna Slavic Languages & Literature

Julie Hengst Speech & Hearing Science

Tania Ionin Linguistics

Karla Moller Curriculum & Instruction

Lori Raetzman Molecular & Integrative Physiology

Katie Ranard Graduate Student, Nutritional Sciences

Sandra Rodriguez-Zas Animal Sciences

Sela Sar Advertising

Mark Steinberg History

Terri Weissman Art & Design



February 26, 2018

Kathy Martensen Office of the Provost

Dear Kathy,

Included is a proposal from the College of Liberal Arts & Sciences and the College of Agricultural, Consumer and Environmental Sciences to "Transfer and Revise the MS in Plant Biotechnology with a PSM Concentration from the Department of Plant Biology, College of LAS to the Department of Crop Sciences, College of ACES".

The proposal was received on January 12, 2018 and reviewed at the Graduate College Executive Committee meeting on February 16, 2018. The committee approved the proposal and found that this proposal meets the standards of Graduate Education at Illinois.

We now forward for your review.

Sincerely. John C. Hart

Executive Associate Dean Graduate College

M. Lowry J. Juvik K. Ritter

c:

#### UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

College of Agricultural, Consumer and Environmental Sciences

Academic Programs 128 Mumford Hall, MC-710 1301 West Gregory Drive Urbana, IL 61801

January 12, 2018

Allison McKinney, Director of Academic Affairs Graduate College 204 Coble Hall Campus MC-322

Dear Allison:

I am writing to request campus-level approval for the revision and transfer of the Professional Science Master's degree program in Plant Biotechnology from the Department of Plant Biology to the Department of Crop Sciences. Please see the attached proposal (in Senate format) for documentation and justification. The proposal has been reviewed and approved by the College of ACES Courses and Curricula Committee.

Thank you for your consideration. I look forward to receiving your reply.

Sincerely,

KKaht Prasanta K. Kalita

Associate Dean ACES Academic Programs

PKK/rhc

cc: N. B. Bosecker J. A. Juvik F. L. Kolb M. K. Lowry ACES C&C Binder