

Idaho State Board of Education

Proposal for Undergraduate/Graduate Degree Program

Date of Proposal Submission:	9/29/2017
	Pending Graduate Council Approval
Institution Submitting Proposal:	University of Idaho
Name of College, School, or Division:	College of Agricultural and Life Sciences
Name of Department(s) or Area(s):	Department of Entomology, Plant Pathology and Nematology

Program Identification for Proposed New or Modified Program:

Program Title:	Plant Pathology				
Degree:	MS	Degree Designation	Undergraduate	X	Graduate
Indicate if Online Program:	Yes	X	No		
CIP code (consult IR /Registrar):	26.0305 Plant Pathology/Phytopathology				
Proposed Starting Date:	July 1, 2018				
Geographical Delivery:	Location(s)		Region(s)		
Indicate (X) if the program is/has:	Self-Support		Professional Fee		
Indicate (X) if the program is:	x	Regional Responsibility		Statewide Responsibility	

Indicate whether this request is either of the following:

- | | |
|---|---|
| <input checked="" type="checkbox"/> New Degree Program | <input type="checkbox"/> Consolidation of Existing Program |
| <input type="checkbox"/> Undergraduate/Graduate Certificates (30 credits or more) | <input type="checkbox"/> New Off-Campus Instructional Program |
| <input type="checkbox"/> Expansion of Existing Program | <input type="checkbox"/> Other (i.e., Contract Program/Collaborative) |

College Dean (Institution) Date

Vice President for Research (Institution; as applicable) Date

Graduate Dean or other official (Institution; as applicable) Date

Academic Affairs Program Manager, OSBE Date

FVP/Chief Fiscal Officer (Institution) Date

Chief Academic Officer, OSBE Date

Provost/VP for Instruction (Institution) Date

SBOE/Executive Director Approval Date

President Date

Before completing this form, refer to Board Policy Section III.G., Postsecondary Program Approval and Discontinuance. This proposal form must be completed for the creation of each new program. All questions must be answered.

Rationale for Creation or Modification of the Program

- 1. Describe the request and give an overview of the changes that will result.** Will this program be related or tied to other programs on campus? Identify any existing program that this program will replace.

This is a request to create a new M.S. degree Program in the newly established (July 2017) Department of Entomology, Plant Pathology and Nematology (EPPN). This degree existed previously in CALS prior to the consolidation of Plant Pathology and Entomology into Plant, Soil and Entomological Sciences (PSES) in 1982. Eight faculty who disciplinarily align with Plant Pathology were part of the Department of Plant, Soil and Entomological Sciences and chose to move their programs into the newly establishment EPPN in July, 2017. Traditionally in PSES, the graduate students working with Plant Pathology faculty received M.S. degrees in Plant Science. Since faculty who complete Plant Pathology research are now members of EPPN and will continue to train graduate students who study Plant Pathology, it is logical that their degree should reflect this discipline. Finally, we are requesting that Plant Pathology be made a state-wide designation.

- 2. Need for the Program.** Describe the student, regional, and statewide needs that will be addressed by this proposal and address the ways in which the proposed program will meet those needs.

Currently the eight Plant Pathology faculty within EPPN supervise 11 M.S. students. During the 2005-2016 time period they graduated 14 M.S. students. The M.S. students supported by these faculty prior to the establishment of the new EPPN department received degrees in Plant Science, whom, if the option had been available would have received graduate degrees in Plant Pathology. The Plant Pathology faculty within EPPN now have the opportunity to deliver degrees to their students that more closely reflects the disciplinal nature of their research. The establishment of the EPPN provides name recognition to the department to help potential students identify research projects focused on plant disease problems. It also provides disciplinal name recognition to the degrees conferred to students by the department.

The market analysis completed by the Hanover Research states that plant pathology programs are not widely available in Idaho. Considering the large agricultural emphasis throughout the state, this is the exact reason why the University of Idaho, as the land grant institute for the state, should be providing education to support individuals with emphasis in plant pathology. In the past, were potential graduate students to look for opportunities to study plant pathology at UI, they would have had a difficult time finding these because "Plant Pathology" was not included in any established program at the university. This situation has been changed with the establishment of the new EPPN department.

In addition, with the newly established EPPN department and the establishment of a M.S. in Plant Pathology we believe that Plant Pathology should be added to the Idaho State Board as a statewide responsibility. There are currently eight Plant Pathology faculty in the state of Idaho, with at least one Plant Pathologist at each Research and Extension Center across the state we are strongly suited to

serve agriculture throughout the state of Idaho.

Workforce need: Provide verification of state workforce needs that will be met by this program. Include [State](#) and [National Department of Labor](#) research on employment potential. Using the chart below, indicate the total projected annual job openings (including growth and replacement demands in your regional area, the state, and nation. Job openings should represent positions which require graduation from a program such as the one proposed. Data should be derived from a source that can be validated and must be no more than two years old.

NATIONAL EMPLOYMENT PROJECTION TRENDS

National labor projections suggest slightly slower than average growth for plant sciences professions. Figure below presents national employment projection data for the four selected occupations. Except for Natural Sciences Managers, all occupations are projected to grow about as fast as the national average for all occupations.

National Employment Projections for Plant Sciences Occupations

SOC TITLES	EMPLOYMENT		CHANGE		AVERAGE ANNUAL OPENINGS
	2014	2024	NUMBER	PERCENT CHANGE	
Total, All Occupations	150,539,900	160,328,800	9,788,900	6.5%	4,650,690
Total, Selected Occupations	104,500	109,600	5,200	5.0%	3,520
Natural Sciences Managers	55,100	56,900	1,800	3.3%	1,330
Soil and Plant Scientists	17,700	18,900	1,200	6.8%	730
Conservation Scientists	21,100	22,500	1,400	6.6%	1,060
Life Scientists, All Other	10,600	11,300	800	7.5%	400

"Projections Central - State Occupational Projections." Projections Central. <http://www.projectionscentral.com/>

Aside from the Idaho data, all state-level projections derive from Projections Central, which compiles employment data from state departments of labor.

"Long Term Occupational Projections." Projections Central – State Occupational Projections.

<http://www.projectionscentral.com/Projections/LongTerm>

"Occupational & Industry Projections." Idaho Department of Labor. <http://lmi.idaho.gov/projections>

Source: Market Analysis MS and PHD Degrees in Plant Pathology: Hanover Research April 2017

REGIONAL EMPLOYMENT PROJECTION TRENDS

The figure below presents regional employment projections for the selected occupations. Overall, employment projections for the selected occupations keep pace with average regional growth rates, suggesting average demand for plant science-related occupations in the region. While growth rates are average, Soil and Plant Scientists are only anticipated to see about 78 job openings per year. Conservation Scientists and Natural Sciences Managers anticipate the highest volume of annual openings.

Regional Employment Projections for Plant Sciences Occupations

SOC TITLES	EMPLOYMENT		CHANGE		AVERAGE ANNUAL OPENINGS
	2014	2024	NUMBER CHANGE	PERCENT	
Total, All Occupations	9,519,180	11,250,400	1,731,220	18.2%	405,920
Total, Selected Occupations	9,124	10,697	1,573	17.2%	458
Natural Sciences Managers	4,173	4,878	705	16.9%	155
Soil and Plant Scientists	1,529	1,783	254	16.6%	78
Conservation Scientists	2,975	3,539	564	19.0%	203
Life Scientists, All Other	447	497	50	11.2%	22

Source: Market Analysis MS and PHD Degrees in Plant Pathology: Hanover Research April 2017

IDAHO EMPLOYMENT PROJECTION TRENDS

Overall, state employment projections predict much faster than average growth for plant science occupations. At 35.1 percent, projected growth for aggregated occupations is nearly 40 percent higher than average. However, it should be noted that these occupations employ a small number of people, with a total of only 68 average annual job openings. **Notably, the Idaho Department of Labor projects an average of only 8 job openings every year for soil and plant scientists.** Therefore, if the eight state conferrals in Plant Sciences during 2015 are maintained, graduates could saturate these annual offerings.

State Employment Projections for Plant Sciences Occupations

SOC TITLES	EMPLOYMENT		CHANGE		AVERAGE ANNUAL OPENINGS
	2014	2024	NUMBER	PERCENT CHANGE	
Total, All Occupations	687,784	824,644	136,860	19.9%	29,865
Total, Selected Occupations	1,064	1,437	373	35.1%	68
Natural Sciences Managers	543	688	145	26.7%	25
Soil and Plant Scientists	149	183	34	22.8%	8
Conservation Scientists	335	519	184	54.9%	33
Life Scientists, All Other	37	47	10	27.0%	2

Source: Idaho Department of Labor

Provide (as appropriate) additional narrative as to the workforce needs that will be met by the proposed program.

a. Student need. What is the most likely source of students who will be expected to enroll (full-time, part-time, outreach, etc.). Document student demand by providing information you have about student interest in the proposed program from inside and outside the institution. If a survey was used, please attach a copy of the survey instrument with a summary of results as **Appendix A**.

No graduate degree-awarding institution in Idaho currently offers a M.S. in Plant Pathology. With Plant Pathology faculty at each research and extension center as well as on the Moscow campus, no other graduate degree-awarding institution in Idaho, other than University of Idaho, is better poised to deliver a M.S. in Plant Pathology. Currently, all students in Idaho who wish to complete a degree that will confer a degree in Plant Pathology must attend institutions of higher education outside the state. In addition, out of state students who are attracted to the diverse agricultural opportunities in

Idaho have not had the option to come to Idaho to pursue those interests and attain a degree in Plant Pathology. The fact that 14 students during the 2005-2016 time period completed research focused on plant pathology projects indicates that there is significant student interest and commitment to this discipline.

b. Economic Need: Describe how the proposed program will act to stimulate the state economy by advancing the field, providing research results, etc.

Agricultural production is an important component of Idaho’s economy and plant pathogens are a major management concern. This program will produce graduates that understand the role of plant pathogens in food production and have the knowledge to apply integrated pest management tools to control plant pathogens and reduce the impact of disease on agriculture in Idaho.

c. Societal Need: Describe additional societal benefits and cultural benefits of the program.

Production of graduates trained in Plant Pathology will translate to increased food security in Idaho and nationwide.

d. If Associate’s degree, transferability:

Not applicable.

3. Similar Programs. Identify similar programs offered within Idaho and in the region by other in-state or bordering state colleges/universities.

There are no similar programs offered within Idaho.

Similar Programs offered <u>by Idaho public institutions</u> (list the proposed program as well)		
Institution Name	Degree name and Level	Program Name and brief description if warranted
BSU	No program	
ISU	No program	
LCSC	No program	
UI	M.S. Plant Pathology	Per this petition

Similar Programs offered <u>by other Idaho institutions and by institutions in nearby states</u>		
Institution Name	Degree name and Level	Program Name and brief description if warranted
Washington State University	Plant Pathology M.S.	Department of Plant Pathology
Oregon State University	Plant Pathology M.S.	Department of Botany and Plant Pathology
Montana State University	Plant Pathology M.S.	Department of Plant Sciences and Plant Pathology
Utah State University	Biology M.S. Emphasis area: Plant Pathology	Department of Biology

4. **Justification for Duplication with another institution listed above.** (if applicable). If the proposed program is similar to another program offered by an Idaho public institution, provide a rationale as to why any resulting duplication is a net benefit to the state and its citizens. Describe why it is not feasible for existing programs at other institutions to fulfill the need for the proposed program.

Not applicable

5. **Describe how this request supports the institution’s vision and/or strategic plan.**

This request will allow the new Department EPPN to offer a new M.S. graduate program in Plant Pathology. The additional program in Plant Pathology will enhance our ability to recruit additional graduate students and help to grow the EPPN department. The increased number of Plant Pathology M.S. students in EPPN will serve as the foundation for the establishment of a Ph.D. program in Plant Pathology in the near future. This increased number of graduate students will contribute to the University’s goal of becoming a Carnegie R1 school.

Goal	Objective	EPPN’s Contribution
Scholarly and creative products of the highest quality	Build a culture of collaboration that increases scholarly and creative productivity through interdisciplinary, regional,	The proposal to develop a Plant Pathology M. S. program will enable EPPN to <i>Expand graduate enrollment</i> by increasing program visibility to prospective students. In an era where

and scope, resulting in significant positive impact for the region and the world.	national and global partnerships	every student counts, offering a formal Plant Pathology program will enable the faculty to efficiently recruit graduate students. They can recruit based on the area of study offered by faculty within EPPN which will be more readily obvious with a formal Plant Pathology program. The science of Plant Pathology is interdisciplinary in nature involving an investigation of the plant pathogen (microbiology, molecular biology), plant (botany, genetic, breeding) and the impact of the environment on these over time. Graduate students will have the opportunity to conduct research in faculty laboratories and produce scholarly works. This will increase the productivity of the laboratories and increase the reputation of the students, faculty and University of Idaho.
	Create, validate and apply knowledge through the coproduction of scholarly and creative works by students, staff, faculty and diverse external partners	
Increase our educational impact.	Grow reputation by increasing the range, number, type and size of external awards, exhibitions, publications, presentations, performances, contracts, commissions and grants.	The proposal will create a new degree program that will serve students who would have previously gone out of state to receive this degree. Faculty responsible for Plant Pathology courses will assess and revise as needed to improve the quality of the Plant Pathology program as a whole. Attention will be made to the incorporation of integrated curricula and pedagogies.
	Provide greater access to educational opportunities to meet the evolving needs of society	
	Foster educational excellence via curricular innovation and evolution	
Foster an inclusive, diverse community of students, faculty and staff and improve cohesion and morale	Create an inclusive learning environment that encourages students to take an active role in their student experience	The Plant Pathology Faculty in EPPN represent 5 different countries and are 50% female. Currently, there are over 8 different countries represented by our graduate students. Continuing to embrace this diversity will enhance the experiences of our graduate students and provides a global perspective to the Plant Pathology curricula.
	Build an inclusive, diverse community that welcomes multicultural and international perspectives	
	Enhance the University of Idaho's ability to compete for and retain outstanding scholars and skilled staff	
	Improve efficiency, transparency and communication	

6. **Assurance of Quality.** Describe how the institution will ensure the quality of the program. Describe the institutional process of program review. Where appropriate, describe applicable specialized accreditation and explain why you do or do not plan to seek accreditation.

Specialized accreditation is not required to offer a M.S. in Plant Pathology. It is our intention to annually evaluate the program using established protocols and metrics posted on the UI Provost Student Learning Assessment page. These UI approved Learning Outcomes, Assessment tools and Procedures will serve as our guide to ensure the delivery of quality courses and subsequently an excellent M.S. Program in Plant Pathology.

7. **In accordance with Board Policy III.G., an external peer review is required for any new doctoral program.** Attach the peer review report as **Appendix B.**

Not applicable to this request.

8. **Teacher Education/Certification Programs** All Educator Preparation programs that lead to certification require review and recommendation from the Professional Standards Commission (PSC) and approval from the Board.

Will this program lead to certification?
 Yes _____ No X

If yes, on what date was the Program Approval for Certification Request submitted to the Professional Standards Commission?

Not applicable to this request.

9. Five-Year Plan: Is the proposed program on your institution’s approved 5-year plan? Indicate below.

Yes X No _____

Proposed programs submitted to OSBE that are not on the five-year plan must respond to the following questions and meet at least one criterion listed below.

a. Describe why the proposed program is not on the institution's five year plan.

When did consideration of and planning for the new program begin?

b. Describe the immediacy of need for the program. What would be lost were the institution to delay the proposal for implementation of the new program until it fits within the five-year planning cycle? What would be gained by an early consideration?

Criteria. As appropriate, discuss the following:

- i. How important is the program in meeting your institution’s regional or statewide program responsibilities? Describe whether the proposed program is in response to a specific industry need or workforce opportunity.
- ii. Explain if the proposed program is reliant on external funding (grants, donations) with a deadline for acceptance of funding.
- iii. Is there a contractual obligation or partnership opportunity to justify the program?
- iv. Is the program request or program change in response to accreditation requirements or recommendations?
- v. Is the program request or program change in response to recent changes to teacher certification/endorsement requirements?

Curriculum, Intended Learning Outcomes, and Assessment Plan

10. Curriculum for the proposed program and its delivery.

a. Summary of requirements. Provide a summary of program requirements using the following table.

Credit hours in required courses offered by the department (s) offering the program.	15
Credit hours in required courses offered by other departments:	
Credit hours in institutional general education curriculum	
Credit hours in free electives	15
Total credit hours required for degree program:	30

M.S. requirements include a formal program of at least 30 semester hours, with a minimum of 12 PLP credit hours and at least 2 credits of ENT. The rest of the courses will be chosen in consultation with the major professor and approved by the student's graduate committee. Of the minimum 30 credits required for the degree, at least 18 credits must be at the 500 level; the remainder may include 400 level courses in the major, and 300 or 400 level courses in supporting areas. Credit in course 500 (Master's Research and Thesis) cannot be counted toward the minimum of 30 credits for a non-thesis master's degree. Although no limit is imposed on the number of credits that may be earned in course 500 for degrees with thesis, only a maximum of 10 credits in course 500 can be used to fulfill master's degree requirements. Two credits of Seminar (501) are required. Three credits of PLP Directed Study (PLP 502) are required and can be delivered by any member of the EPPN faculty.

Credits earned in other Plant Pathology courses earned in another school or through correspondence study may be substituted for directed study credits. No more than a combined total of 12 credits earned in another school, through correspondence study, or while in non-matriculated status at the University of Idaho, may be included in a master's program. Transfer and correspondence courses must be from schools that offer a graduate degree in the area of the course.

The proposed courses are listed in **Appendix A**.

- b. Additional requirements.** Describe additional requirements such as comprehensive examination, senior thesis or other capstone experience, practicum, or internship, some of which may carry credit hours included in the list above.

Submission of a thesis is required for graduation.

11. Program Intended Learning Outcomes and Connection to Curriculum.

Intended Learning Outcomes. List the Intended Learning Outcomes for the proposed program, using learner-centered statements that indicate what will students know, be able to do, and value or appreciate as a result of completing the program.

1. Plant Pathology graduate degree students will learn to recognize, define and differentiate the causes and types of plant diseases and apply this information using diverse thinking strategies to address real-world issues.
2. Plant Pathology graduate students will be able to integrate information across the scientific disciplines including Plant Pathology, Entomology, and Plant Sciences to implement disease control practices, solve problems, and make decisions that impact agriculture.
3. Plant Pathology graduate students will be able to convey knowledge using verbal and non-verbal methods of communication in a respectful manner that reflects our complex society.

12. Assessment plans

- a. **Assessment Process.** Describe the assessment process that will be used to evaluate how well students are achieving the intended learning outcomes of the program.

Direct Measure Process (per our current protocols and metrics): All of the above listed Learning Outcomes will be assessed using a variety of metrics including having students demonstrate an ability to apply academic knowledge to real-world problems and controversies using case studies and complete standardized exams that assess ability to integrate and synthesize various concepts. The students will be assessed on their ability to complete disciplinary research, write a thesis, give a seminar on their thesis and defend the thesis. Faculty agree that these measures cover each of the student learning outcomes and that 80% of the students will need to attain an 80% proficiency on all assessments that address learning outcomes.

Indirect Measure Process (per our current protocols and metrics): Student graduate reporting, including feedback from both student and advisor; student evaluations of teaching; student grades in core courses, including performance on lecture exams, laboratory exams, class projects, and term papers. The numbers of students participating in clubs/organizations and service learning will reflect students who strive to excel above their academic education and endeavor to be leaders.

Face-to-Face Measures (per our current protocols and metrics): Exit interviews with graduates, including overall assessment of degree program, and opportunities for service learning activities.

- b. **Closing the loop.** How will you ensure that the assessment findings will be used to improve the program?

The Department of Entomology, Plant Pathology and Nematology includes a departmental faculty Curriculum Committee that will be charged with interpretation of annual Learning Outcome metrics for all EPPN instructional programs and that will recommend specific policies for consideration and implementation at the yearly faculty meeting and one on one with instructors as needed. One focus will be to reconsider current Learning Outcomes, Assessments and Metrics as we create a second departmental Major that spans entomology, plant pathology, nematology; focus also will be on curricular and co-curricular changes. An underpinning objective will be to contribute to UI Strategic Plan Goals for graduate enrollment.

Measures used. What direct and indirect measures will be used to assess student learning?

Direct Benchmarks:

We will determine how the students in the program demonstrate the ability to critically analyze and report on disease case studies. We will determine how satisfied employers are with our graduates.

Indirect Benchmarks:

We will correlate how are students are performing academically with their overall satisfaction.

At least 80% of advisors and students report overall satisfaction with graduate experience; student evaluations of course and instructor quality in courses required by major and emphasis areas are 3 or higher; students receive a grade of C or higher in all courses required by major and emphasis areas.

Timing and frequency. When will assessment activities occur and at what frequency? Learning Outcomes Assessment as outlined in Q-12.a and Q-12.c will occur throughout the academic year. Metrics will be reported annually during September for the prior Academic Year. New or adjusted procedures and metrics will be developed by the Plant Pathology faculty during FY18 and beyond as needed.

Enrollments and Graduates

13. **Existing similar programs at Idaho Public Institutions.** Using the chart below, provide enrollments and numbers of graduates for similar existing programs at your institution and other Idaho public institutions.

There are no similar programs at BSU, ISU or LCSC.

Existing Similar Programs: Historical enrollments and graduate numbers						
Institution and Program Name	Fall Headcount Enrollment in Program			Number of Graduates From Program (Summer, Fall, Spring)		
	FY2014-15	FY2015-16	FY2016-17	FY2014-15	FY2015-16	FY2016-17
BSU	0	0	0	0	0	0
ISU	0	0	0	0	0	0
UI*	3	6	6	1	2	2
LCSC	0	0	0	0	0	0

*Numbers reflect students who were in the PSES department and received M.S. degrees in the Plant Science program.

14. **Projections for proposed program:** Using the chart below, provide projected enrollments and number of graduates for the proposed program:

The establishment of the new EPPN department raises the profile of Plant Pathology. In turn, we expect an increase in student numbers.

Proposed Program: Projected Enrollments and Graduates First Five Years											
Program Name:											
Projected Fall Term Headcount Enrollment in Program						Projected Annual Number of Graduates From Program					
FY18-19 (first year)	FY19-20	FY20-21	FY21-22	FY22-23	FY23-24	FY18-19 (first year)	FY19-20	FY20-21	FY21-22	FY22-23	FY23-24
10	11	11	12	12	13	2	3	3	3	4	4

15. Describe the methodology for determining enrollment and graduation projections.

Refer to information provided in Question #2 "Need" above. What is the capacity for the program? Describe your recruitment efforts? How did you determine the projected numbers above?

The methods for determining enrollment and graduation projections were based on historical data. Previously, students who were trained by Plant Pathology faculty received degrees in Plant Sciences, we looked at recent and past enrollment and graduation data. We anticipate that having curricula in which these students will receive Plant Pathology degrees will provide better visibility for our academic programs and should help to increase our graduate enrollments.

16. Minimum Enrollments and Graduates. Have you determined minimums that the program will need to meet in order to be continued? What are those minimums, what is the logical basis for those minimums, what is the time frame, and what is the action that would result?

The minimum enrollment for the Plant Pathology M.S. program is 5 students. The average number of M. S. students supervised by Plant Pathology faculty over the past 5 years in PSES is 8 students, and has not dropped below the proposed number of 5 during the past 5 years. This is comparable with the average for Entomology, the other M.S. graduate program delivered by EPPN.

The sunset clause by which the program will be considered for discontinuance is an enrollment for the M.S. that averages below 5 students for more than 3 years in a row during a 5 year moving window. This will be evaluated every 5 years after the establishment of the Plant Pathology M.S Program. If the average number drops below 5, the EPPN Department Head will begin discussions with the CALS Dean to determine a course of action which will include increased recruitment efforts.

Resources Required for Implementation – fiscal impact and budget

17. Physical Resources.

- a. **Existing resources.** Describe equipment, space, laboratory instruments, computer(s), or other physical equipment presently available to support the successful implementation of the program.

It is anticipated that this program will share existing teaching space with the Plant Sciences and Soil and Water Systems and ASM programs in the Iddings Agricultural Sciences building. Teaching budgets supplied by CALS for all programs will be utilized to cover the cost of regular laboratory supplies.

- b. **Impact of new program.** What will be the impact on existing programs of increased use of physical resources by the proposed program? How will the increased use be accommodated?

Since new courses are being proposed to be added for the new major we will work with CALS and the University to identify space as needed. Since we are proposing graduate programs we expect the impact to be minimal.

- c. **Needed resources.** List equipment, space, laboratory instruments, etc., that must be obtained to support the proposed program. Enter the costs of those physical resources into the budget sheet.

No additional resources are required to support this new major since laboratory fees are being requested.

18. Library resources

- a. **Existing resources and impact of new program.** Evaluate library resources, including personnel and space. Are they adequate for the operation of the present program? Will there be an impact on existing programs of increased library usage caused by the proposed program? For off-campus programs, clearly indicate how the library resources are to be provided.

Since students already complete Plant Pathology research programs students are already utilizing the UI library so we expect minimal requests to increase access to Plant Pathology-related journals. Due to the interdisciplinary nature of Plant Pathology research, journals and other resources adequate for the graduate students in the Plant Sciences and MMBB programs should be suitable for students in the new M.S. Plant Pathology degree program. A faculty member associated with the new EPPN will work with the library director to ensure that all needs are met.

- b. **Needed resources.** What new library resources will be required to ensure successful implementation of the program? Enter the costs of those library resources into the budget sheet.

None should be required above those currently being requested by the Plant Sciences and SWS programs.

19. Personnel resources

- a. Needed resources.** Give an overview of the personnel resources that will be needed to implement the program. How many additional sections of existing courses will be needed? Referring to the list of new courses to be created, what instructional capacity will be needed to offer the necessary number of sections?

New courses are currently not necessary within the first 3-5 years of the program. Should enrollment for PLP 416/516 exceed 30 students, an additional section of will be required.

- b. Existing resources.** Describe the existing instructional, support, and administrative resources that can be brought to bear to support the successful implementation of the program.

The general mechanisms used to fund academic programs within CALS will be suitable to support this new program. Classroom space is currently available in Ag. Sciences. One faculty member and one instructor are available and currently teaching Plant Pathology courses.

- c. Impact on existing programs.** What will be the impact on existing programs of increased use of existing personnel resources by the proposed program? How will quality and productivity of existing programs be maintained?

Since students have been completing Plant Pathology research within CALS many of the courses required by these students to complete their degree program have always been required within the former PSES department. Therefore, we do not anticipate a negative impact on any existing program. It was understood by the members of the Plant Sciences Department that with the bifurcation of PSES that the students trained by the Plant Pathology faculty would temporarily be working toward Plant Science degrees until the EPPN Department was able to request the establishment of a Plant Pathology M.S. (this proposal) and Ph. D. (proposal in preparation) degree programs.

Needed resources. List the new personnel that must be hired to support the proposed program. Enter the costs of those personnel resources into the budget sheet.

The proposed new graduate program does not require additional courses. If student numbers exceed our projections, a graduate student teaching assistantship may be required. Any open/opening faculty positions will need to be replaced to cover the existing courses.

20. Revenue Sources

- a) **Reallocation of funds:** If funding is to come from the reallocation of existing state appropriated funds, please indicate the sources of the reallocation. What impact will the reallocation of funds in support of the program have on other programs?

The Department of Entomology, Plant Pathology and Nematology is a new stand-alone department, complete with adequate funding and plans to hire. The faculty that are within this department were members of PSES previously. The funding to support this new department was from within CALS. The faculty in EPPN are already training graduate students. The establishment of the Plant Pathology M.S. Program in EPPN enables the students to obtain their degree in the new department. We do expect that the establishment of a Plant Pathology M.S. Program will enable us to effectively recruit more students and that is represented in the budget sheet. The support for this program is a reallocation of Institutional and Federal Funds within CALS. The Federal Budget funds were a pull of all the faculty that were doing research in the respective areas in PSES because that was part of the calculations for the expenses. This action was a result of a direct question asking the SBOE if they really wanted to include the research including subcontracts. Anything that was labeled Federal according to OSP was included. The institutional funds included in the budget were calculated from local service, general education and gift/endowments.

- b) **New appropriation.** If an above Maintenance of Current Operations (MCO) appropriation is required to fund the program, indicate when the institution plans to include the program in the legislative budget request.
- c) **Non-ongoing sources:**
- i. If the funding is to come from one-time sources such as a donation, indicate the sources of other funding. What are the institution's plans for sustaining the program when that funding ends?
 - ii. Describe the federal grant, other grant(s), special fee arrangements, or contract(s) that will be valid to fund the program. What does the institution propose to do with the program upon termination of those funds?
- d) **Student Fees:**
- i. If the proposed program is intended to levy any institutional local fees, explain how doing so meets the requirements of Board Policy V.R., 3.b.

The lab fees requested are for students to offset the costs of materials for the course.
 - ii. Provide estimated cost to students and total revenue for self-support programs and for professional fees and other fees anticipated to be requested under Board Policy V.R., if applicable.

21. Using the budget template provided by the Office of the State Board of Education, provide the following information:

- Indicate all resources needed including the planned FTE enrollment, projected revenues, and estimated expenditures for the first **four** fiscal years of the program.
- Include reallocation of existing personnel and resources and anticipated or requested new

resources.

- Second and third year estimates should be in constant dollars.
- Amounts should reconcile subsequent pages where budget explanations are provided.
- If the program is contract related, explain the fiscal sources and the year-to-year commitment from the contracting agency(ies) or party(ies).
- Provide an explanation of the fiscal impact of any proposed discontinuance to include impacts to faculty (i.e., salary savings, re-assignments).

Appendix A

M.S. Plant Pathology Curriculum

Minimum of 12 PLP Credits Required

PLP 415/515	Plant Pathology	3 credits
PLP 416/516	Plant Pathology Laboratory	1 credit
PLP 511	Plant Virology	4 credits
PLP 522	Plant Bacteriology	3 credits
PLP 501	Seminar	2 credits
PLP 502	Directed Study	3 credits*

In addition, a course in applied entomology is required. Any one of the following would satisfy this requirement:

ENT 547 Fundamentals of Biological Control (2 credits)
 ENT 591 Principles of Insect Pest Management (3 credits)
 ENT 546 Host Plant Resistance to Insects and Pathogens (3 credits)
 ENT 549 Insect-Plant Interactions (3 credits)

2-3 credits

*Three credits of PLP Directed Study (PLP 502) are required and can be delivered by any member of the EPPN faculty. Credits earned in other Plant Pathology courses earned in another school or through correspondence study may be substituted for directed study credits.