

Pharmaceutical Sciences - Ph.D 2017 - 2018 Assessment Plan

Currently status is: Report Accepted

I. ANNUAL REPORT FOR 2016 - 2017

Mission Statement

The vision statement of the South Carolina College of Pharmacy is ***“Improving Health through Leadership and Innovation in Pharmacy Education, Research, and Patient Care.”***

The SCCP is an education and research enterprise that makes the best use of state resources, student tuition, grant funds, and endowment funds to:

- produce pharmacists at the Pharm.D. level to serve the health needs of South Carolina citizens related to drug therapy.
- apply and develop expertise in economics, epidemiology, and health outcomes assessment to guide population-level drug policy at local, state, and federal levels to make the best decisions regarding medications.
- conduct basic research in the pharmaceutical sciences, population-based research in pharmacoepidemiology and pharmacoconomics, and clinical research.

The vision and mission speak to the three components of an academic health science college – education, research, and patient care. Society has needs and expectations for pharmacy professionals and for pharmaceutical care. Such needs dictate that the primary mission of the College be the instruction of pharmacy students. The College is compelled to produce excellent pharmacists for society. We recognize a profession must innovate and experiment to advance. There is a need to continually improve health care by discovering new medicines, understanding diseases, and creating new models of health care and this is achieved through education and research training of graduate students. Finally, the health professions have their foundation in service to society. A health science college must provide service to maintain relevance and provide the best training environment for students.

Goal 1.

Pharmaceutical Sciences doctoral graduates are expected to gain the required knowledge of theory in the core areas of pharmaceutical sciences.

Curriculum

PHAR 700 *Principles of Pharmacology, Medicinal Chemistry, and Pharmaceutics.*

PHAR 701 *Current Topics in Pharmaceutical Sciences*

Learning Outcome 1.

Students will demonstrate proficiency in understanding principles of medicinal chemistry, pharmacology, and pharmaceutics. Students will also demonstrate knowledge in techniques of biochemistry, molecular biology, physiology as applied to pharmaceutical research.

Measures and Criteria

- At least 90% of students will receive a grade of B or better in each exam and project in PHAR 700. A final grade of B or higher for 90% of students is also the goal.
- For PHAR 700 Students will be evaluated with 5 written exams of equal weighting. There will also be a special project and presentation.
 - Tests 1-5, 18% each.
 - Project: 10%
- At least 90% of students will receive a grade of B or better in PHAR 701.
- For PHAR 701 Students will be evaluated based on an assignment from each instructor. The assignments will be weighted equally, and averaged to give a final percentage and

grade.

- Grading Scale for PHAR 700 and PHAR 701:

A	90 - 100
B+	86.67 - 89.99
B	80 - 86.66
C+	76.67 - 79.99
C	70 - 76.66
D+	66.67 - 69.99
D	60 - 66.66
F	< 60

Methods

- Faculty teaching PHAR 700 will grade the exams. The faculty members will meet with the purpose of identifying students' strengths and weaknesses and this assessment strategy.
- At the end of the semester, all faculty members who administered exams will submit this information to the graduate director. The graduate director will aggregate and analyze the data, and submit a report to the department chair. Results will be shared and discussed with the graduate faculty in the department at the end of the spring semester. Appropriate recommendations for the program change will be made and recorded in the program faculty minutes.
- Grades in PHAR 701 are largely determined by students' performance on written assignments. Faculty will grade the written assignments to probe the depth of knowledge and ability of the students to effectively communicate their knowledge through written responses.

Results

- PHAR 700 was taught for the fifth time in Fall 2016. There were 5 students enrolled in the course. No students received any score less than a B. The results for students on each of the exams administered in the course were as follows:

PHAR 700	Fall 2016 <i>n</i> =5
Exam 1	83.7
Exam 2	88.6
Exam 3	91.6
Exam 4	89.5
Exam 5	84.6
Project	93.6
Final Grade	88.6

- In Spring 2017, PHAR 701 had 7 students enrolled in the course. The average for each assignment was 90% or higher except for the CNS-Neurotransmission project (79.3%) and Theragonostics (89.3%). The final average in the course was a 93.1% and no students received less than an A in the course. The results for students on each of the projects throughout the semester were as follows:

PHAR 701	Spring 2017 <i>n</i> =7
Cell Cycle	98.2
Microarray Technology / Gene Expression Profiling	93.3
Personalize Medicine	96.4
Theragonostics	89.3
CNS-Neurotransmission	79.3
Biopharmaceuticals and Glycoengineering	94.3
Genetics and Drug Addiction	94.9
ER Stress	100
Inflammation and Cancer	90.7

Ion Channels	91.1
Neurodegenerative Diseases	96.4
Final Grade	93.1

PHAR 700 Principles - Fall 2016

PHAR 701 Current Topics - Spring 2017

Use of Results

The PHAR 700 and 701 courses have run smoothly, feedback from the students was positive, and students did well on the exams. Although no changes were made, we continue to monitor the content of the courses, and will update the material as we see fit. For example, a new block focused on academia will be incorporated into PHAR 701 in the future as well as additional topics on personalized medicine.

Goal 2.

Pharmaceutical Sciences doctoral graduates will be able to conduct and disseminate research that advances the state of knowledge in the field of inquiry. They are expected to develop technical skills, interpret data, and formulate hypotheses in their area of doctoral research. They are expected to develop the presentation skills to effectively disseminate their knowledge.

Curriculum

PHAR 896 (doctoral directed research)

PHAR 712 (Seminar course)

Learning Outcome 1.

Students will be able to identify pertinent research problems, and formulate a research plan.

Measures and Criteria

- Initial Research Proposal (IRP). Students provide a written report and orally defend the proposal to their thesis committee. This proposal is typically prepared in the third semester of their graduate career, and is focused on their doctoral research topic. The committee judges the written and oral presentation. The categories on the written portion of the examination are: pass, provisional pass pending submission of corrections, and fail. For the oral examination, the categories are: pass, fail.
- Ninety percent of students should pass or receive a provisional pass on their written IRP on the first attempt. Ninety percent of students should pass the oral examination on the first attempt. All students are required to pass in order to progress.
- NIH-style research proposal. Students provide a written report and orally defend the proposal to their thesis committee. This proposal is typically prepared in the sixth semester of their graduate career, and is on a research topic outside of the area of their doctoral research. The thesis committee judges the written and oral presentation.
- Ninety percent of students should pass their NIH-style proposal on the first attempt. All students are required to pass their NIH-style proposal in order to progress.

Methods

- Members of the thesis committee will rate the student's written document for grammar, clarity, soundness of scientific rationale, and feasibility. In the case that the committee recommends provisional pass pending submission of revisions, the committee members provide suggestions in writing to the student, and the chair of the committee is responsible for setting a deadline by which the corrections must be submitted to the committee for approval. In the case that the committee recommends fail, the committee will provide, in writing, suggestions to the student. The committee chair will provide a written summary of the results of the examination, specify why the proposal was unacceptable, set the criteria by which the proposal must be modified, and set a deadline by which the revised proposal is to be resubmitted. The written summary provided by the chair will be added to the student's file.
- For the oral examination, the categories are: pass, fail. In the case of fail, the committee chair will explain to the student the reasons, as judged by the committee, for failure. The chair will document the major deficiencies in writing and the summary will be added to the student's file.
- The student's thesis committee chair forwards all results of IRP and NIH proposal examinations to the administrative assistant, who compiles the information. The graduate director analyzes the data from all students who presented proposals during that year. The graduate director reports the data

to the faculty and the department chair at a faculty meeting just after the conclusion of the spring semester.

Results

- The 4 students who presented their IRP this year successfully defended their IRP on their first attempt this year and passed (100%).
- Two students presented their Comprehensive Exam and passed on the first attempt (100%).

Use of Results

No concerns, the students are passing their IRP and comprehensive examinations.

Learning Outcome 2.

Students will be able to critically analyze relevant literature, and to communicate scientific findings with oral presentations.

Measures and Criteria

- In PHAR 712, students present an oral presentation of approximately 45 minutes. The presentation is on a research topic approved by the faculty advisor. The student is expected to present the methods, findings, and conclusions of 2-4 primary research papers newly published in high quality journals. The students are graded by faculty in attendance in the following categories (100 points maximum): Depth of knowledge demonstrated during presentation (35 points), and during post-seminar questioning (10 points), abstract quality (5 points), quality of power point slides (15 points), oral communication skills (25 points), and adequate conveyance of relevance and potential future impact of the subject (10 points). All students should earn a B or better on this assignment, which comprises the grade for this 1 credit hour course.
- Grading Scale for PHAR 712:

A	90 - 100
B+	86.67 - 89.99
B	80 - 86.66
C+	76.67 - 79.99
C	70 - 76.66
D+	66.67 - 69.99
D	60 - 66.66
F	< 60
- This ability is also assessed by performance in the NIH-style proposal (see Learning Outcome 1 of Goal 2). All students must pass their NIH-style proposal in order to progress in the program. The pass/fail structure is based on their written and oral defense of the proposal.

Methods

- The instructor of record for PHAR 712 assigns the dates for each student to present for each semester. All students attend all presentations; the instructor takes attendance. For each presentation, the instructor passes out judging forms to all faculty in attendance. Each faculty member grades the presenter on the criteria above. The instructor collects the forms, and compiles the data, including numerical scores and comments. The instructor prepares a written summary of the grading and meets with each student to discuss the performance, including suggestions for improvement.
- Assessment for PHAR 712 is based on the faculty evaluation of the presentation, which includes a point score of 100 total points; based specifically on knowledge base, presentation style, appropriateness of slides, and knowledge base during questioning from the audience.
- Members of the student's thesis committee judge the NIH-style proposal as described in Learning Outcome 1 of Goal 2.

Results

Fifteen students were enrolled in PHAR 712 during the 2016-2017 academic year. All students received a final grade of B or higher on their oral presentation (average 87.6, min 80.4 and max 94.1). The categories receiving the highest performance included the abstract section (93.9) and quality of slides (89.3). Weaknesses included a lack of depth of knowledge displayed during post-seminar questioning (84.8) and convey of relevance and potential future impact (83.6) were the two areas with the lowest overall performance. Average scores for each section of the assignment are included below.

PHAR 712	2016-2017 <i>n</i> =15
Depth of knowledge demonstrated during presentation	88.2
Depth of knowledge displayed during post-seminar questioning	84.8
Abstract	93.9
Quality of PowerPoint slides and other visual	89.3
Oral communication skills during presentation	87.3
Did the speak adequately convey the relevance and potential future impact of the subject	83.6
Final Grade	87.6

PHAR 712 Graduate Seminar - Spring 2017

Use of Results

The course is operating smoothly and achieving its objectives. Constructive written feedback was given to each of the students. However, we will encourage more detailed feedback from the faculty in evaluations, and have a 15 minute review session with each student to improve their skills.

Learning Outcome 3.

Students will be able to generate and analyze original research results, and to communicate these results to the scientific community.

Measures and Criteria

- The number of papers authored/co-authored and the number of conference presentations given by graduate students are indicators of research ability. The graduate director recommends that each student submit at least one manuscript for outside peer review, leading to reputable journals, and/or present research findings at national/international conferences. Acceptance of the manuscripts for publication is not required for graduation, but the thesis committee should conclude that there is enough original research for at least one publication in the thesis. The final disposition of publications is the decision of the faculty advisor in agreement with the student. All students should submit at least one manuscript for submission to a refereed archival journal, and/or present research at a conference by the time they defend their thesis.
- This research ability is also assessed through the thesis defense. The student's ability to analyze original research results and to communicate these results in writing is rated by the thesis committee. The categories are: pass; provisional pass pending minor revisions; fail, major revisions required. All students must pass the thesis defense to graduate.
- The student's ability to draw conclusions from research findings and propose future experiments in writing and orally is judged by the thesis committee in the doctoral thesis and during the oral defense of the thesis.

Methods

- Students' major professors keep track of presentations at conferences and published papers that involve the work of students. At the end of each year, each student's major professor sends notice to the administrative assistant of the graduate program of graduate student participation in abstracts submitted, conferences attended, and manuscripts published. The administrative assistant enters this information into a database. At the end of the academic year, the graduate director compiles the data and analyzes it. The summary of results is then given to the department chair, who is responsible for sharing and discussing this with the graduate faculty of the department.
- Members of the thesis defense committee will rate the student's ability to generate, analyze original research results, and to communicate these results. The committee also evaluates the student's ability to draw conclusions from the results and propose future experiments. In the case that a rater determines that a student is unsatisfactory, the committee will provide narrative explanation of the nature and area of the deficiency. The committee chair will report unsatisfactory performances in

writing to the graduate director and department chair. At the end of each year, the graduate director will summarize noted areas of deficiency. At the first program meeting of each academic year, the graduate director will discuss with faculty areas of deficiency. If problem areas are identified, the faculty will develop curriculum and programmatic changes that can remedy the problem.

Results

- During the 2016-2017 academic year, there were a total of 15 publications and 14 presentations
- All graduate students were rated satisfactory from their committee regarding their ability to generate and analyze original research results and to communicate results. Two students successfully defended their doctoral thesis during the 2016-2017 academic year.

Use of Results

The department will continue to encourage students to publish and present their work at national and international meetings. Students are encouraged to, and often get travel awards and fellowships to support these activities.

We will more aggressively encourage our students to apply for fellowships and travel awards, especially through the travel program available through the Graduate School.

Goal 3.

All graduates will be competitive candidates for professional careers.

Curriculum

All aspects of the curriculum contribute to this goal and are evaluated with respect to their success in contributing to the first two goals. In addition, students meet with their advisors to discuss placement issues.

Learning Outcome 1.

Within five years of graduation with their PhD degree, students will be engaged in professional careers and/or postdoctoral fellowship.

Measures and Criteria

- Ninety percent of our graduates will be engaged in professional careers or a postdoctoral fellowship.

Methods

- Given the current resources of the college, it is not clear when a program to harvest information from alumni can begin. Future efforts in this regard might require help from the graduate school and university alumni office, or we might have to re-evaluate how this outcome method works.

Results

Two students received their PhD in Pharmaceutical Sciences during the 2016-2017 academic year. 100% were engaged in professional careers following graduation (job details noted below).

1. Job following graduation - Assistant Professor of Biology at Catawba College in NC
2. Job following graduation - Director of Bioinformatics at Hospital for Special Surgery Research Institute in New York

Use of Results

Understanding where students are employed will encourage future collaborations for current faculty and students. Opportunity to highlight success of past graduate students to attract high quality graduate students.

Learning Outcome 2.

Over time, graduates of our program will be successful in professional careers.

To assess this moving forward, we will survey graduate's employers on outcomes such as rank in institution, students mentored, publications, and national/international recognition.

Measures and Criteria

Our graduates will attain positions of importance in academia and industry.

Methods

Our Departmental seminar coordinator solicits input from faculty to invite back to campus alumni of the program who have established careers in biomedical research, either industrial or academic. Once a year, we hold a "Back to Carolina" seminar, in which an established alumnus of the program who is invited to give a seminar, meet with faculty and current students.

Results

There were no alumni speakers this academic year.

Use of Results

We will continue to extend invitations to graduates of our program who fit the criteria described above. We will also extend invitations specifically to more recent graduates, who can give a perspective of recent hiring practices.

Goal 4.

The health outcomes specialization offered by the graduate faculty of the Department of Clinical Pharmacy and Health Outcomes Sciences admitted 0 students for AY 2014-2015. Goals and learning outcomes for students in this specialization will be different from the ones described above for Drug Discovery and Biomedical Sciences, are currently being finalized and will be included in next year's report.

Below, the goals, curriculum, learning outcomes, measures and criteria, and methods sections have all been carried over from the previous year until the changes referenced above have been finalized.

Doctoral graduate students in the Department of Clinical Pharmacy & Outcomes Sciences are expected to gain the required knowledge of theory and research in the core areas of outcomes research.

Curriculum

BIOS 701 Concepts and Methods of Biostatistics

BIOS 757 Intermediate Biometrics

PHAR 740 Socioeconomics of Pharmacy Practice

PHAR 742 Research Methods in Pharmacy Administration

Learning Outcome 1.

Students will demonstrate knowledge of basic outcomes research knowledge. Students will also demonstrate proficiency in understanding the principles necessary for development of an outcomes research study.

Measures and Criteria

- All Students will receive a grade of B or better BIOS 701, BIOS 757.
- Students will also write a research proposal in PHAR 742 describing and explaining in detail a research project of their own interest. All students should receive a score of 8 (out of 10) or higher when evaluated with the assignment's rubric.
- In addition, ninety percent of students should pass the qualifying exam on their first attempt.

Methods

- Faculty teaching PHAR 742 will submit final, ungraded reports to the program assistant director. The program director will make a copy of the papers and return the original copy to the appropriate faculty. The program assistant director will make sure to remove any student identifying information (e.g., name, SSN) from the copy. The program assistant director will compile a representative sample of these papers to be distributed to the faculty for evaluation using the appropriate rubric. The faculty members will meet with the purpose of identifying students' strengths and weaknesses and this assessment strategy. Where weaknesses are identified, recommendations will be developed and given to the graduate faculty at the end of the spring semester.
- At the end of the semester, the program assistant director will compile a database of students grades in the designated courses. The program assistant director will aggregate and analyze the data, and submit a report to the graduate student faculty. Appropriate recommendations for the program change will be made.

- Students will complete a qualifying exam cover material from applicable courses typically during their second year of graduate studies. Questions will be composed by graduate faculty to reflect content from the applicable courses. The examination will be graded on a pass fail bases as designated by the graduate faculty. Student must pass all components of the exam to be promoted to doctor candidate status. If any component of the exam is not passed the student will have one additional attempt to retake and pass those components.

Results

There are no results for this assessment because no students took part during this past year

Use of Results

Applicable courses for this learning outcome were not offered this year.

Goal 5.

The health outcomes specialization offered by the graduate faculty of the Department of Clinical Pharmacy and Health Outcomes Sciences admitted 0 students for AY 2014-2015. Goals and learning outcomes for students in this specialization will be different from the ones described above for Drug Discovery and Biomedical Sciences, are currently being finalized and will be included in next year's report.

Goals, etc. carried over from the previous year until the changes referenced above have been finalized.

Doctoral graduate students in the Department of Clinical Pharmacy & Outcomes Sciences will be able to conduct and disseminate research that advances the state of knowledge in the field of inquiry. They are expected to develop technical skills, interpret data, and formulate hypotheses in their area of doctoral research. They are expected to develop the presentation skills to effectively disseminate their knowledge.

Curriculum

PHAR 896 (doctoral directed research)

PHAR 711 (Seminar)

Learning Outcome 1.

Students will be able to identify pertinent research problems, and formulate a research plan.

Measures and Criteria

- Initial Research Proposal (IRP). Students provide a written report and orally defend the proposal to their dissertation committee. This proposal is typically prepared in the third year of their graduate career, and is focused on their doctoral research topic. The committee judges the written and oral presentation. The categories on the written portion of the examination are: pass, provisional pass pending submission of corrections, and fail. For the oral examination, the categories are: pass, fail.
- Ninety percent of students should pass or receive a provisional pass on their written IRP on the first attempt. All students are required to pass in order to progress.

The health outcomes specialization offered by the graduate faculty of the Department of Clinical Pharmacy and Health Outcomes Sciences admitted 0 students for AY 2012-2013. Goals and learning outcomes for students in this specialization, which will be different from the ones described above for Drug Discovery and Biomedical Sciences, are currently being finalized and will be included in next year's report.

Methods

- Members of the thesis committee will rate the student's written document for grammar, clarity, soundness of scientific rationale, and feasibility. In the case that the committee recommends provisional pass pending submission of revisions, the committee members provide suggestions in writing to the student, and the chair of the committee is responsible for setting a deadline by which the corrections must be submitted to the committee for approval. In the case that the committee recommends fail, the committee will provide, in writing, suggestions to the student. The committee chair will provide a written summary of the results of the examination, specify why the proposal was unacceptable, set the criteria by which the proposal must be modified, and set a deadline by which the revised proposal is to be resubmitted. The written summary provided by the chair will be added to the student's file.

- For the oral examination, the categories are: pass, fail. In the case of fail, the committee chair will explain to the student the reasons, as judged by the committee, for failure. The chair will document the major deficiencies in writing and the summary will be added to the student's file.
- The student's thesis committee chair forwards all results of IRP to the administrative assistant, who compiles the information. The graduate assistant director analyzes the data from all students who presented proposals during that year. The graduate assistant director reports the data to the graduate faculty at the conclusion of the spring semester.

The health outcomes specialization offered by the graduate faculty of the Department of Clinical Pharmacy and Health Outcomes Sciences admitted 0 students for AY 2012-2013. Goals and learning outcomes for students in this specialization, which will be different from the ones described above for Drug Delivery and Biomedical Sciences, are currently being finalized and will be included in next year's report.

Results

There are no Results for this assessment because no students took part during this past year.

Use of Results

There are no Use of Results listed for this assessment.

Learning Outcome 2.

Students will be able to critically analyze relevant literature, and to communicate scientific findings with oral presentations.

Measures and Criteria

- In PHAR 711, students present an oral presentation of approximately 45 minutes. The presentation is on a research topic approved by the faculty advisor. The student is expected to present the methods, findings, and conclusions a recently published research paper. The students are graded by faculty in attendance in the following categories: Depth of knowledge demonstrated during presentation, and during post-seminar questioning, abstract, quality of power point slides, oral communication skills, and adequate conveyance of relevance and potential future impact of the subject. All students should earn a B or better on this assignment, which comprises the grade for this 1 credit hour course.

Methods

- The instructor of record for PHAR 711 assigns the dates for each student to present for each semester. All students attend all presentations; the instructor takes attendance. For each presentation, the instructor passes out judging forms to all faculty in attendance. Each faculty member grades the presenter on the criteria above. The instructor collects the forms, and compiles the data, including numerical scores and comments. The instructor prepares a written summary of the grading and meets with each student to discuss the performance, including suggestions for improvement.

The health outcomes specialization offered by the graduate faculty of the Department of Clinical Pharmacy and Health Outcomes Sciences admitted 0 students for AY 2012-2013. Goals and learning outcomes for students in this specialization, which will be different from the ones described above for Drug Discovery and Biomedical Sciences, are currently being finalized and will be included in next year's report.

Results

There are no Results for this assessment because no students took part during this past year.

Use of Results

There are no Use of Results listed for this assessment.

Learning Outcome 3.

Students will be able to generate and analyze original research results, and to communicate these results to the scientific community.

Measures and Criteria

The health outcomes specialization offered by the graduate faculty of the Department of Clinical Pharmacy and Health Outcomes Sciences admitted 0 students for AY 2012-2013. Goals and learning outcomes for

students in this specialization will be different from the ones described above for Drug Discovery and Biomedical Sciences, and are currently being finalized and will be included in next year's report.

- The number of papers authored/co-authored and the number of conference presentations given by graduate students are indicators of research ability. The graduate assistant director recommends that each student submit at least one abstract to a national or international meeting and one manuscript to a reputable peer reviewed journal. Acceptance of the manuscripts for publication is not required for graduation, but the dissertation committee should conclude that there is enough original research for at least one publication in the dissertation. The final disposition of publications is the decision of the faculty advisor.
- This research ability is also assessed through the dissertation defense. The student's ability to analyze original research results and to communicate these results in writing is rated by the dissertation committee. The categories are: pass; provisional pass pending minor revisions; fail, major revisions required. All students must pass the dissertation defense to graduate.
- The student's ability to draw conclusions from research findings and propose future experiments in writing and orally is judged by the dissertation committee in the doctoral dissertation and during the oral defense of the dissertation.

Methods

- Students' major professors keep track of presentations at conferences and published papers that involve the work of students. At the end of each year, each student's major professor sends notice to the administrative assistant of the graduate program of graduate student participation in abstracts submitted, conferences attended, and manuscripts published. The administrative assistant enters this information into a database. At the end of the academic year, the graduate assistant director compiles the data and analyzes it. The summary of results is then shared and discussed with the graduate faculty at the end of the Spring semester.
- Members of the dissertation defense committee will rate the student's ability to generate, analyze original research results, and to communicate these results. The committee also evaluates the student's ability to draw conclusions from the results and propose future experiments. In the case that a rater determines that a student is unsatisfactory, the committee will provide narrative explanation of the nature and area of the deficiency. The committee chair will report unsatisfactory performances in writing to the graduate assistant director. At the end of each year, the graduate assistant director will summarize noted areas of deficiency. At the first program meeting of each academic year, the graduate assistant director will discuss with the graduate faculty areas of deficiency. If problem areas are identified, the faculty will develop curriculum and programmatic changes that can remedy the problem.

Results

There are no Results for this assessment because no students took part during this past year.

Use of Results

There are no Use of Results listed for this assessment.

Goal 6.

The health outcomes specialization offered by the graduate faculty of the Department of Clinical Pharmacy and Health Outcomes Sciences admitted 0 students for AY 2014-2015. Goals and learning outcomes for students in this specialization will be different from the ones described above for Drug Discovery and Biomedical Sciences, are currently being finalized and will be included in next year's report.

Below, the goals, curriculum, learning outcomes, measures and criteria, and methods sections have all been carried over from the previous year until the changes referenced above have been finalized.

All graduates will be competitive candidates for professional careers.

Curriculum

All aspects of the curriculum contribute to this goal and are evaluated with respect to their success in contributing

to the first two goals. In addition, students meet with their advisors to discuss placement issues.

Learning Outcome 1.

The health outcomes specialization offered by the graduate faculty of the Department of Clinical Pharmacy and Health Outcomes Sciences admitted 0 students for AY 2012-2013. Goals and learning outcomes for students in this specialization will be different from the ones described above for Drug Discovery and Biomedical Sciences, and are currently being finalized and will be included in next year's report.

Within two years of graduation with their PhD degree, students will be engaged in professional careers and/or postdoctoral fellowship.

Measures and Criteria

- Ninety percent of our graduates will be engaged in professional careers or a postdoctoral fellowship.

Methods

- The graduate assistant director will make their best effort to maintain a alumni list serve to keep alumni informed of any changes to the graduate program.
- All graduates will be contacted 2 years after their graduation date by the program assistant director to determine:
 - o Where each is employed
 - o The extent to which they were satisfied with their experience in the graduate program, and
 - o The extent to which they were prepared by the Ph.D. program.
 - o Data from these survey forms will be analyzed by the program assistant director and data summaries will be disseminated to the graduate faculty.

Results

There are no Results for this assessment because no students took part during this past year.

Use of Results

There are no Use of Results listed for this assessment.

II. FUTURE ASSESSMENT PLAN FOR 2017 - 2018

Mission Statement

Our mission is to prepare the next generation of innovative and collaborative pharmacists and health scientists while pioneering clinical, entrepreneurial, and research endeavors to improve health outcomes for residents of South Carolina and beyond.

We will accomplish this by:

- Continually building a culture of compassion, inclusiveness and collegiality
- Providing comprehensive pharmacy education
- Conducting and disseminating state of the art research
- Establishing optimal student experiences
- Engaging in community outreach
- Expanding pharmacy practice, post-graduate training, and business opportunities
- Growing alumni and partner relationships
- Foster faculty and staff development

Goal 1.

Demonstrate knowledge and application of the theories, principles, and methods underlying the pharmaceutical sciences.

Curriculum

Department of Drug Discovery and Biomedical Sciences (DDBS)

- PHAR 700 *Principles of Pharmacology, Medicinal Chemistry, and Pharmaceutics.*
- PHAR 701 *Current Topics in Pharmaceutical Sciences*

Department of Clinical Pharmacy and Outcomes Sciences (CPOS)

- *BIOS 701 Concepts and Methods of Biostatistics*
- *BIOS 757 Intermediate Biometrics*
- *PHAR 740 Socioeconomics of Pharmacy Practice*
- *PHAR 742 Research Methods in Pharmacy Administration*

Learning Outcome 1.

DDBS: Students will demonstrate proficiency in understanding principles of medicinal chemistry, pharmacology, and pharmaceuticals. Students will also demonstrate knowledge in techniques of biochemistry, molecular biology, physiology as applied to pharmaceutical research.

Measures and Criteria

- At least 90% of students will receive a grade of B or better in each exam and project in PHAR 700. A final grade of B or higher for 90% of students is also the goal.
- For PHAR 700 Students will be evaluated with 5 written exams of equal weighting. There will also be a special project and presentation.
 - Tests 1-5, 18% each.
 - Project: 10%
- At least 90% of students will receive a grade of B or better in PHAR 701.
- For PHAR 701 Students will be evaluated based on an assignment from each instructor. The assignments will be weighted equally, and averaged to give a final percentage and grade.

Methods

- Faculty teaching PHAR 700 will grade the exams. The faculty members will meet with the purpose of identifying students' strengths and weaknesses and this assessment strategy.
- At the end of the semester, all faculty members who administered exams will submit this information to the graduate director. The graduate director will aggregate and analyze the data, and submit a report to the department chair. Results will be shared and discussed with the graduate faculty in the department at the end of the spring semester. Appropriate recommendations for the program change will be made and recorded in the program faculty minutes.
- Grades in PHAR 701 are largely determined by students' performance on written assignments. Faculty will grade the written assignments to probe the depth of knowledge and ability of the students to effectively communicate their knowledge through written responses.

Learning Outcome 2.

CPOS: Students will demonstrate knowledge of basic outcomes research knowledge. Students will also demonstrate proficiency in understanding the principles necessary for development of an outcomes research study.

Measures and Criteria

- All Students will receive a grade of B or better BIOS 701, BIOS 757.
- Students will also write a research proposal in PHAR 742 describing and explaining in detail a research project of their own interest. All students should receive a score of 8 (out of 10) or higher when evaluated with the assignment's rubric.
- In addition, ninety percent of students should pass the qualifying exam on their first attempt.

Methods

- Faculty teaching PHAR 742 will submit final, ungraded reports to the program assistant director. The program director will make a copy of the papers and return the original copy to the appropriate faculty. The program assistant director will make sure to remove any student identifying information (e.g., name, SSN) from the copy. The program assistant director will compile a representative sample of these papers to be distributed to the faculty for evaluation using the appropriate rubric. The faculty members will meet with the purpose of identifying students' strengths and weaknesses and this assessment strategy. Where weaknesses are identified, recommendations will be developed and given to the graduate faculty at the end of the spring semester.

At the end of the semester, the program assistant director will compile a database of students grades in the designated courses. The program assistant director will aggregate and analyze the data, and submit a report to the graduate student faculty. Appropriate recommendations for the program change will be made.

- Students will complete a qualifying exam cover material from applicable courses typically during their second year of graduate studies. Questions will be composed by graduate faculty to reflect content from the applicable courses. The examination will be graded on a pass fail bases as designated by the graduate faculty. Student must pass all components of the exam to be promoted to doctor candidate status. If any component of the exam is not passed the student will have one additional attempt to retake and pass those components.

Goal 2.

Identify pertinent research problems and formulate a research plan.

Curriculum

Department of Drug Discovery and Biomedical Sciences (DDBS)

- *PHAR 712 Seminar Course*
- *PHAR 896 Doctoral Directed Research*

Department of Clinical Pharmacy and Outcomes Sciences (CPOS)

- *PHAR 711 Seminar Course*
- *PHAR 896 Doctoral Directed Research*

Learning Outcome 1.

Students will be able to identify pertinent research problems and formulate a research plan.

Measures and Criteria

- DDBS and CPOS:
 - Initial Research Proposal (IRP). Students provide a written report and orally defend the proposal to their thesis or dissertation committee. This proposal is typically prepared in the third year of their graduate career, and is focused on their doctoral research topic. The committee judges the written and oral presentation. The categories on the written portion of the examination are: pass, provisional pass pending submission of corrections, and fail. For the oral examination, the categories are: pass, fail.
 - Ninety percent of students should pass or receive a provisional pass on their written IRP on the first attempt. Ninety percent of students should pass the oral examination on the first attempt. All students are required to pass in order to progress.
- DDBS:
 - NIH-style research proposal. Students provide a written report and orally defend the proposal to their thesis committee. This proposal is typically prepared in the sixth semester of their graduate career, and is on a research topic outside of the area of their doctoral research. The thesis committee judges the written and oral presentation.
 - Ninety percent of students should pass their NIH-style proposal on the first attempt. All students are required to pass their NIH-style proposal in order to progress.

Methods

- DDBS and CPOS:
 - Members of the thesis committee will rate the student's written document for grammar, clarity, soundness of scientific rationale, and feasibility. In the case that the committee recommends provisional pass pending submission of revisions, the committee members provide suggestions in writing to the student, and the chair of the committee is responsible for setting a deadline by which the corrections must be submitted to the committee for approval. In the case that the committee recommends fail, the committee will provide, in writing, suggestions to the student. The committee chair will provide a written summary of the results of the examination, specify why the proposal was unacceptable, set the criteria by which the

- proposal must be modified, and set a deadline by which the revised proposal is to be resubmitted. The written summary provided by the chair will be added to the student's file.
- For the oral examination, the categories are: pass, fail. In the case of fail, the committee chair will explain to the student the reasons, as judged by the committee, for failure. The chair will document the major deficiencies in writing and the summary will be added to the student's file.
 - The student's thesis committee chair forwards all results of IRP and NIH proposal examinations to the administrative assistant, who compiles the information. The graduate director analyzes the data from all students who presented proposals during that year. The graduate director reports the data to the faculty and the department chair at a faculty meeting just after the conclusion of the spring semester.

Goal 3.

Critically analyze relevant literature and communicate scientific findings through oral presentations.

Curriculum

Department of Drug Discovery and Biomedical Sciences (DDBS)

- *PHAR 712 Seminar Course*
- *PHAR 896 Doctoral Directed Research*

Department of Clinical Pharmacy and Outcomes Sciences (CPOS)

- *PHAR 711 Seminar Course*
- *PHAR 896 Doctoral Directed Research*

Learning Outcome 1.

Critically analyze relevant literature and communicate scientific findings through oral presentations.

Measures and Criteria

- DDBS and CPOS:
 - In PHAR 712 (DDBS) and PHAR 711 (CPOS), students present an oral presentation of approximately 45 minutes. The presentation is on a research topic approved by the faculty advisor. The student is expected to present the methods, findings, and conclusions of 2-4 primary research papers newly published in high quality journals. The students are graded by faculty in attendance in the following categories (100 points maximum): Depth of knowledge demonstrated during presentation (35 points), and during post-seminar questioning (10 points), abstract quality (5 points), quality of power point slides (15 points), oral communication skills (25 points), and adequate conveyance of relevance and potential future impact of the subject (10 points). All students should earn a B or better on this assignment, which comprises the grade for this 1 credit hour course.
- DDBS:
 - This ability is also assessed by performance in the NIH-style proposal. All students must pass their NIH-style proposal in order to progress in the program. The pass/fail structure is based on their written and oral defense of the proposal.

Methods

- DDBS and CPOS:
 - The instructor of record for PHAR 712 (DDBS) and PHAR 711 (CPOS) assigns the dates for each student to present for each semester. All students attend all presentations; the instructor takes attendance. For each presentation, the instructor passes out judging forms to all faculty in attendance. Each faculty member grades the presenter on the criteria above. The instructor collects the forms, and compiles the data, including numerical scores and comments. The instructor prepares a written summary of the grading and meets with each student to discuss the performance, including suggestions for improvement.
- DDBS:
 - Members of the student's thesis committee judge the NIH-style proposal.

Goal 4.

Generate and analyze original research and communicate findings to the scientific community.

Curriculum

Department of Drug Discovery and Biomedical Sciences (DDBS)

- *PHAR 712 Seminar Course*
- *PHAR 896 Doctoral Directed Research*

Department of Clinical Pharmacy and Outcomes Sciences (CPOS)

- *PHAR 711 Seminar Course*
- *PHAR 896 Doctoral Directed Research*

Learning Outcome 1.

Generate and analyze original research and communicate findings to the scientific community.

Measures and Criteria

- DDBS and CPOS:
 - The number of papers authored/co-authored and the number of conference presentations given by graduate students are indicators of research ability. The graduate director recommends that each student submit at least one manuscript for outside peer review, leading to reputable journals, and/or present research findings at national/international conferences. Acceptance of the manuscripts for publication is not required for graduation, but the thesis committee should conclude that there is enough original research for at least one publication in the thesis. The final disposition of publications is the decision of the faculty advisor in agreement with the student. All students should submit at least one manuscript for submission to a refereed archival journal, and/or present research at a conference by the time they defend their thesis.
 - This research ability is also assessed through the thesis defense. The student's ability to analyze original research results and to communicate these results in writing is rated by the thesis committee. The categories are: pass; provisional pass pending minor revisions; fail, major revisions required. All students must pass the thesis defense to graduate.
 - The student's ability to draw conclusions from research findings and propose future experiments in writing and orally is judged by the thesis committee in the doctoral thesis and during the oral defense of the thesis.

Methods

- DDBS and CPOS:
 - Students' major professors keep track of presentations at conferences and published papers that involve the work of students. At the end of each year, each student's major professor sends notice to the administrative assistant of the graduate program of graduate student participation in abstracts submitted, conferences attended, and manuscripts published. The administrative assistant enters this information into a database. At the end of the academic year, the graduate director compiles the data and analyzes it. The summary of results is then given to the department chair, who is responsible for sharing and discussing this with the graduate faculty of the department.
 - Members of the thesis defense committee will rate the student's ability to generate, analyze original research results, and to communicate these results. The committee also evaluates the student's ability to draw conclusions from the results and propose future experiments. In the case that a rater determines that a student is unsatisfactory, the committee will provide narrative explanation of the nature and area of the deficiency. The committee chair will report unsatisfactory performances in writing to the graduate director and department chair. At the end of each year, the graduate director will summarize noted areas of deficiency. At the first program meeting of each academic year, the graduate director will discuss with faculty areas of deficiency. If problem areas are identified, the faculty will develop curriculum and programmatic changes that can remedy the problem.

Goal 5.

Within five years of graduation operate as professionals in their chosen careers.

Curriculum

All aspects of the curriculum contribute to this goal and are evaluated with respect to their success in contributing to the initial goals. In addition, students meet with their advisors to discuss placement issues.

Learning Outcome 1.

Within five years of graduation with their PhD degree, students will be engaged in professional careers and/or postdoctoral fellowship.

Measures and Criteria

- Ninety percent of our graduates will be engaged in professional careers or a postdoctoral fellowship.
- Our graduates will attain positions of importance in academia and industry.

Methods

- Maintain an alumni list to keep alumni informed of any changes to the graduate program.
- All graduates will be contacted within 3 years after their graduation date to determine:
 - Where each is employed
 - The extent to which they were satisfied with their experience in the graduate program, and
 - The extent to which they were prepared by the Ph.D. program.
 - Data from these survey forms will be analyzed by the program director and data summaries will be disseminated to the graduate faculty.
- Will assess graduates' employers on outcomes such as rank in institution, students mentored, publications, and national/international recognition.
- DDBS: Departmental seminar coordinator solicits input from faculty to invite back to campus alumni of the program who have established careers in biomedical research, either industrial or academic.