## Pharmaceutical Sciences, Health Outcomes, PhD, 2017

The Health Outcomes Research and Policy option focuses on study of the social and behavioral aspects of pharmacy, research to maximize medication-related outcomes, and comparative effectiveness research.

The student pursuing the Ph.D. will be expected to complete a minimum of 60 semester hours of course work in the chosen field of study. Ph.D. students will take courses offered by HORP department and by other departments (such as statistics, research methods, communication, computer science, engineering, psychology, sociology, management, economics, and epidemiology) in Auburn University. In addition, general examinations and a dissertation are required. A student must earn a minimum of 10 hours credit for the dissertation.

A bachelor’s degree from an accredited college or university and satisfactory scores on the Graduate Record Examination are required. A pharmacy degree is preferred. There is no additional language requirement beyond verbal and written fluency in English.

There are currently 13 Ph.D. students.

## Student Learning Outcomes

### Specificity of Outcomes

**Students graduating from the Health Outcomes Research and Policy doctoral program will:**

1. **Apply integrated knowledge of social, behavioral and economics sciences to health services research**

Students should be able to apply principles related to: health services program planning and evaluation, social and behavioral theories, pharmaceutical economics, health outcomes and policy as well as pharmacoepidimiology to health services research with the overall goals to address health care problems, improve quality, and reduce cost.

1. **Demonstrate ability to synthesize information**

Students should be able to analyze literature relevant to the field, select pertinent information and present it in a concise manner.

1. **Demonstrate ability to select appropriate research methods and statistical analyses for given scenarios**

Students should be able to identify appropriate research design, method, and statistical analysis as well as justify as to why they are appropriate. Also they need to recognize the key limitations.

1. **Provide evidence of being independent theory-based researcher**

Students should be able design, carry out, and evaluate outcomes of a rigorous study using theories, principles and methods within their expertise in order to address literature gaps.

1. **Demonstrate acceptable scientific communication skills**

Students should be able to disseminate research ideas and evidence to various stakeholders using verbal and written communication and in both informal and formal venues.

### Comprehensive Outcomes

[Please provide a brief narrativestating whether or not the list of student learning outcomes is comprehensive (i.e., the student learning outcomes accurately reflect the current scope of the program). Consider also providing a rationale for the degree/nature of comprehensiveness (e.g., student learning outcomes are aligned with disciplinary standards).]

### Communicating Student Learning Outcomes

These outcomes are published in the HORP student handbook which is distributed to all graduate faculty as well as new and current graduate students every Fall semester as well as displayed on the program’s website. These outcomes represent the breadth of knowledge of various disciplines relevant to health outcomes research. They also emphasize the need for students to develop their own expertise in health outcomes research.

## Curriculum Map

### Curriculum Map

Below is a curriculum map that represents the alignment between our student learning outcomes and the required courses. Students are required to take 60 hours of graduate credit. Students choose electives for their remaining credits that are related to their area of research. Students are permitted to take courses outside of HORP at the discretion of their committee chair.

|  | **Knowledge** | **Synthesize Information** | **Research Methods and Analyses** | **Independent research** | **Communication** |
| --- | --- | --- | --- | --- | --- |
| HORP 8950 Seminar a (total 4 credit) | 1,2 | 2 | 2a | 2 | 1,3 |
| PYPS 7000 Introduction to grant writing |  | 2 | 2 | 3 | 1,3 |
| ERMA 7300 & 7310 Design and Analysis in Education I and II |  |  | 1 | 1 |  |
| STAT 7000 & 7010 Experimental Statistics I and II |  |  | 1 | 1 |  |
| STAT 6110 SAS programming |  |  |  | 1 |  |
| HORP 7510 Health Services b | 1,3 | 2 | 2 | 2 | 2 |
| HORP 7520 Soc & Behav b theory | 1,3 | 2 | 2 | 2 | 2 |
| HORP 7530 Pharmaceutical econ b | 1,3 | 1,3 | 1,2 | 2 | 2 |
| HORP 7540 Pharmacoepidemiology b | 1,3 | 2 | 1,2 | 2 | 2 |
| HORP 7820 Res Methods |  | 1,3 | 1,3 | 2 | 2 |
| HORP 8990 Res and Dissertation (total 10 credits) | 3 | 3 | 3 | 3 | 3 |

Gray - Choose either ERMA or STAT series

1. Introduced, 2 – reinforced, 3-emphasized

a Seminar’s focus could vary from one semester to another; b These courses are offered in a sequence; each is offered every two years

## Measurement

### Outcome-Measure Alignment

The Department assesses student learning outcomes through the comprehensive exam process, proposal defense and the dissertation defense as well as student presentations in the departmental seminars. A description of these measures are below.

1. **Comprehensive Exams**

Prior to proposing their dissertation ideas, all PhD students must pass the comprehensive exams (may be referred to as the preliminary exams) which assess students’ knowledge of basic principles of a specific discipline of pharmaceutical sciences. The exam includes a written examination and include an oral examination. The written examination component consists of two parts: a six-hour test session and a take-home examination. The written examination is based on the Departments core curriculum. The written exam also will test specific aspects of the student’s primary area of study. For the six-hour test session, the student shall use a computer to type his/her answers. However, the student shall not consult any resources during the test session. At the end of the sixth hour, the student will electronically submit his/her answers. As for the take-home component, the student will have a maximum of four days to complete the examination. The student will be tested primarily in the student’s major area of study. The student is allowed to consult published resources when preparing answers to the take-home questions, but must cite these resources accordingly. Though, consulting any individuals is prohibited. The student shall submit a typed response to each of the questions.

The oral examination component will be scheduled within two weeks after the completion of the written examination. The student may be asked to further clarify the answers in the written examination or asked to respond to new questions related to the student’s major area of study.

The examination committee members grade the written exams in the area in which they are responsible for. Together they fill out the evaluation form after the oral examination.

The comprehensive exams are used to measure: 1) students’ ability to apply integrated knowledge of social, behavioral and economics sciences to health services research in four areas -- health services delivery, social & behavioral theories, pharmaceutical economics, and pharmacoepidemiology; 2) students’ ability to synthesize information from literature; and 3) students’ ability to select appropriate research methods and statistical analyses for given scenarios.

doctor of philosophy evaluation of preliminary exam performance checklist

**doctor of philosophy evaluation of preliminary exam scoring rubric**

1. **Evaluation of Communication Skills in Student Presentations**

Doctoral students are required to enroll in at least 4 departmental seminars and are encouraged to participate in subsequent seminars if time permit. Seminar audiences (faculty and students) fill out an evaluation form to rate student presenter’s communication skills. Each PhD student has at least one opportunity to make the presentation per year. This measure assesses Outcome #5 – ability to communicate.

**Rubric: Evaluation of Communication Skills**

To be completed by faculty and graduate students

| **Dimension** | **Below Expectations** | **Meets Expectation** | **Exceeds Expectation** |
| --- | --- | --- | --- |
| **Content**:  Consider: Scope and depth of knowledge, evidence of literature analysis and synthesis | ☐ | ☐ | ☐ |
| **Contribution to discipline:**  Consider: Evidence of discovery, expansion upon previous research, and research significance | ☐ | ☐ | ☐ |
| **Quality of response to questions:** Consider: Completeness of responses, whether responses are supported by literature, and how responses are organized and delivered | ☐ | ☐ | ☐ |
| **Use of communication aids:**  Consider: Communication aids’ contributions to the quality of the presentation and how information is presented | ☐ | ☐ | ☐ |
| **Use of allotted time:**  Consider: Whether the presenter utilizes the time efficiently | ☐ | ☐ | ☐ |
| **Presentation skill:**  Consider: clarity and rate of speech, free of distracting mannerisms | ☐ | ☐ | ☐ |
| Overall quality | ☐ | ☐ | ☐ |

1. **Doctoral Dissertation**

All students are required to propose and defend a doctoral dissertation. A successful proposal defense permits the student to proceed with data collection and a successful dissertation defense permits the student to graduate. Each dissertation committee is comprised of at least 4 graduate faculty members including a chair, two internal faculty members and one external member. At both proposal defense and dissertation defense, each committee member will utilize a rubric to evaluate students’ performance as an independent researcher and submit the completed form to the chair. This measure primarily assesses Outcomes #4 and #5.

evaluation of proposal and dissertation defense faculty instructions

evaluation of proposal and dissertation defense performance checklist

### Direct Measures

[Please consider indicating which assessments are direct measures of student learning (e.g., exams, rubric scores).]

### Data Collection

[Please provide a description of the assessment data collection process (i.e., information on how data were collected, who provided data, and the pertinent methodological details such as rating/scoring design).]

## Results

### Reporting Results

1. **Comprehensive Exam**

| Overall performance | Summer 2013 Spring 2014 | Summer 2014 – Summer 2015 | Fall 2015 - Summer 2016 |
| --- | --- | --- | --- |
| Unacceptable | 1 | 1 | 1 |
| Acceptable | 1 | 0 | 0 |
| Very good | 1 | 1 | 1 |
| Outstanding | 0 | 0 | 0 |

Comprehensive exam is primarily used to measure the first three outcomes: 1) apply integrated knowledge of social, behavioral and economics sciences to health services research; 2) Demonstrate ability to synthesize information; and 3) demonstrate ability to select appropriate research methods and statistical analyses for given scenarios.

Three students took the exam in Summer 2013, two students took the exam in Summer 2014 - Summer 2015 and two in Fall 2015 – Summer 2016. To protect student’s privacy, we combined the results. In 2013, Three students did not do well in one particular subject (behavioral theories). In particular, students had difficulty remembering specific variables of certain theories and had difficulty applying to a given scenario. In 2013, one student failed one section of the open-book portion of the exam and therefore, was evaluated as “unacceptable”. In 2014-2016, two students failed the closed-book research methods component (therefore, the student was rated as “unacceptable”. Specifically, the student could not select an appropriate design based on a given scenario. In the span of 4 years, three students failed one section and had to undergo a remediation plan. Results of the comprehensive exams have been shared and discussed among the Departmental graduate faculty. Subsequently, the research methods course has been modified with the goal to improve students’ performance in research design.

In 2016-2017, six students have taken the comprehensive exams during the week of June 26, 2017. However, the results are not available at the time of writing this report. We plan to report # of students who are rated: unacceptable, acceptable, very good and outstanding in each of these categories.

| Measure | Unacceptable | Acceptable | Very good | Outstanding |
| --- | --- | --- | --- | --- |
| Knowledge of health services delivery and evaluation |  |  |  |  |
| Knowledge of social and behavioral theories |  |  |  |  |
| Knowledge of pharmaceutical economics, outcomes and policy |  |  |  |  |
| Knowledge of pharmacoepidimiology |  |  |  |  |
| Ability to select appropriate research methods and analyses |  |  |  |  |
| Ability to synthesize literature |  |  |  |  |

1. **Evaluation of Communication Skills in Student Presentations**

Communication skills in the seminar are evaluated, primarily to measure students’ ability to communicate their research ideas and evidence (#5).

All students who presented during Fall 2015-Spring 2016 received either meet (score = 2) or exceed expectations (score = 3) as their overall performance from each evaluator. The mean score for each student ranged from 2.4 – 2.8, with the grand average of 2.6.

During Fall 2016 – Spring 2017, we compiled and provide the average below.

|  | Fall 2016 | Spring 2017 |
| --- | --- | --- |
| **Content** Consider: Scope and depth of knowledge, evidence of literature analysis and synthesis | 2.63 | 2.48 |
| **Contribution to discipline** Consider: Evidence of discovery, expansion upon previous research, and research significance | 2.65 | 2.58 |
| **Completeness of responses** Consider: whether responses are supported by literature, and how responses are organized and delivered | 2.64 | 2.46 |
| **Use of communication aids** Consider: Communication aids' contributions to the quality of the presentation and how the information is presented | 2.65 | 2.42 |
| **Use of alloted time** Consider: Whether the presenter utilizes the time efficiently | 2.70 | 2.51 |
| **Presentation skills** Consider: Clarity and rate of speech, free of distracting mannerisms | 2.62 | 2.41 |
| **Overall Quality** | 2.65 | 2.49 |

1. **Doctoral Dissertation**

Proposal defense and dissertation defense are used to measure students’ ability to design, carry out, and evaluate outcomes of a rigorous study using theories, principles and methods within their expertise in order to address literature gaps (#4). They can also measure students’ ability to communicate research ideas and evidence to dissertation committee members as well as the general public (#5).

**Proposal Defense**

| Overall assessment | Summer 2013 – Spring 2014 | Fall 2014 –Summer 2015 | Fall 2015 –Summer 2016 | Fall 2016 –Summer 2017 |
| --- | --- | --- | --- | --- |
| Does not meet expectations | 0 | 0 | 0 | 0 |
| Meets expectations | 0 | 1 | 0 | 1 |
| Exceeds expectations | 1 | 2 | 1 | 0 |

**Dissertation Defense**

| Overall assessment | Summer 2013 – Spring 2014 | Fall 2014 –  Summer 2015 | Fall 2015 – Summer 2016 |
| --- | --- | --- | --- |
| Does not meet expectations | 0 | 0 | 0 |
| Meets expectations | 0 | 1 | 1 |
| Exceeds expectations | 0 | 1 | 1 |

### Interpreting Results

[Please provide an interpretation of the results aligned with the student learning outcomes. The interpretation should reflect consideration of factors (e.g., capabilities of a particular cohort, innovative curricular change) that may have affected the results. ]

All students successfully defended their dissertation proposals and their dissertations. We note that some student may have struggled with theory applications and/or may not use advanced statistical analyses when appropriate. The committee noted these weaknesses and communicated directly with the students. The overall results of all defenses have been communicated with the Departmental graduate faculty for future improvement.

### Communicating Results

[Please provide a very brief narrative describing with whom the results are shared (e.g., all program faculty).]

## Use of Results

### Purposeful Reflection and Action Plan

This report was shared with the Departmental graduate faculty at the Departmental retreat in June 2017. The time was dedicated to discuss students’ outcomes and the measures as well as action plans.

1. In the past, the overall outcome of the comprehensive exam were given to the students (but no specific feedback regarding which area(s) students should improve their performance). Starting in Summer 2017, the major advisor will summarize his or her student’s strengths and areas for improvement and discuss them with the exam takers.
2. The second area for the Department to improve is about communicating feedback received from seminar’s presentations to the students. Starting from the Fall 2017, the seminar coordinator will summarize the feedback received from seminar attendees and provide the feedback to the student’s advisor as well as the student.

Based on the discussion, we will implement the plan and continue to discuss possible areas in need of improvement based on these data and our observations of students’ progress in the curriculum.