A Retrospective Analysis and Curricular Mapping Assessment of Student Engagement in Research Design in Classes Offered by the College of Pharmacy at University of North Texas Health Science Center at Fort Worth

Karthikeyan Baskaran, B.S.

APPROVED:

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Major Professor

_____

Committee Member

_____

Committee Member

_____

Committee Member

_____

Chair, Department of Biomedical Sciences

_____

Dean, Graduate School of Biomedical Sciences

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INTERNSHIP PRACTICUM REPORT

Presented to the Graduate Council of the

Graduate School of Biomedical Sciences

University of North Texas

Health Science Center at Fort Worth

in Partial Fulfillment of the Requirements

For the Degree of

MASTER OF SCIENCE

IN CLINICAL RESEARCH MANAGEMENT

By

Karthikeyan Baskaran, B.S.

Fort Worth, Texas

November 2016

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ACKNOWLEDGEMENTS

I would like to extend my sincere and heartfelt appreciation to all the individuals who have helped me with my Practicum Internship. For their active guidance, help, cooperation and encouragement, I am truly grateful.

I am overwhelmingly indebted to my committee members: Dr. Patrick G. Clay, Dr. Jerry Simecka, Dr. Victor Uteshev, and Dr. Patricia A. Gwirtz. Their conscientious guidance, and encouragement throughout my thesis project was instrumental.

It is with great pleasure to acknowledge my deepest thanks and gratitude to my internship mentor Dr. Patrick G. Clay for: suggesting this topic for my thesis project, valuable supervision, and support for the completion of this project.

I would like to extend my thanks to Dr. Clay for giving me the opportunity to further explore my knowledge of Clinical Research and Management. He also provided precious advice in order to become an effective scientist but more importantly a better individual. It is a great honor to work under his supervision.

I extend my appreciation to the *University of North Texas Health Science Center*, *UNT System College of Pharmacy, and UNTHSC School of Public Health* for giving me this opportunity to learn and conduct this thesis project.

I also acknowledge with a deep sense of reverence towards my parents and members of my family, who have always supported me morally and financially. Last but not least gratitude goes to all my friends who directly or indirectly helped me throughout this practicum internship.

Any omission in this brief acknowledgement does not mean a lack of gratitude.

Thanking You

Karthikeyan Baskaran

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CHAPTER I

INTRODUCTION

The American Association of College of Pharmacy (AACP) claims that pharmacists are medication experts who use their knowledge of medicines to help patients get well [27]. Additional responsibilities include but not limited to dispensing medications, monitoring patient health, providing patients with education of the use of prescription and over-the-counter medications, and collaborating with other members of the health care team (ex. physicians, and nurses).

Pharmacists possess a broad base of knowledge in pharmacology, including pharmacokinetics, pharmacodynamics, pharmacogenetics, pharmacotherapy, and pharmacoeconomics as well as a strong understanding of human metabolism, transport, and elimination. Pharmacists obtain the necessary education and training by attending and completing a rigorous curriculum at a institution of pharmacy. Upon successful completion, students obtain their Doctor of Pharmacy (PharmD.).

According to the Accreditation Council for Pharmacy Education (ACPE), there are currently 140 fully accredited institutions of pharmacy in the United States of America [28]. The ACPE is a national agency for the accreditation of both professional degree programs and continuing pharmacy education. ACPE states accreditation process provides a professional

judgment of the quality of an institution of pharmacy's professional program(s) and to encourage continued improvement [29]. The first ACPE accreditation standards were published in 1937 [32]. They are periodically revised, approximately every six to eight years, in order to keep up with the changes in pharmacy education, practice, and training.

According to the Texas State Board of Pharmacy, there are currently eight institutions of pharmacies in the state of Texas [23]:

- Texas A&M Health Science Center Irma Lerma Rangel College of Pharmacy
- Texas Southern University College of Pharmacy and Health Sciences
- Texas Tech University Health Sciences Center School of Pharmacy
- University of Houston College of Pharmacy
- University of the Incarnate Word Feik School of Pharmacy
- University of North Texas System College of Pharmacy
- University of Texas College of Pharmacy
- University of Texas at Tyler

The University of North Texas System College of Pharmacy (UNTSCP) was founded in 2011 [24] and is located at the University of North Texas Health Science Center (UNTHSC) in Fort Worth, Texas. The global vision of UNTSCP is described as "We make healthcare better" [25]. UNTSCP is dedicated to providing an educational program necessary to train pharmacy

profession to provide patient care, to practice collaboratively with other health care professionals, and to develop life-long learning and self-evaluation skills [26].

All colleges of pharmacy undergo a long accreditation process. Programs seeking full accreditation undergo the process of validation and acquire a status based on the evaluation. Programs may attain the following statuses based on individual review and evaluation: precandidate, candidate, or accredited. Precandidate status is awarded to developmental programs. Institutions will mature based on steps outlined in stated plans within a predetermined time period. Attaining this status authorizes the program under evaluation to admit its first class. Candidate status is awarded to Doctor of Pharmacy programs where students are enrolled by have not had a graduating class. Accredited status is awarded to programs, which have met all ACPE standards necessary for accreditation. This would also entail that the program has graduated its first class.

As of June 2014, UNTSCP possesses candidate status [31]. The administration of UNTSCP has its first full accreditation review in May 2017. To prepare for this, UNTSCP has to demonstrate it is in compliance to ACPE 2016 curricular standards. UNTSCP will have to conduct and generate a Self-Study report. This report documents how the pharmacy degree program is addressing the ACPE's Standards. Upon completion, an on-site visit is scheduled and conducted. The purpose of the on-site visit is to validate and/or contradict the college's Self-Study Report. This results to the creation of an *Evaluation Team Report* (ETR), which is

distributed to both the college, and the ACPE Board of Directors. Upon review of the documents, the ACPE Board of Directors will determine UNTSCP pharmacy degree program's compliance with ACPE standards. This will lead to the preparation of the *Actions and Recommendations (A&R)* document. This document is the official accreditation action [18].

The curricular standards can be found in a document called "*ACCREDITATION STANDARDS AND KEY ELEMENTS FOR THE PROFESSIONAL PROGRAM IN PHARMACY LEADING TO THE DOCTOR OF PHARMACY DEGREE*" which can and will be referred to as "*Standards 2016.*"

Standards 2016 was approved on January 25, 2015 and released on February 2, 2015. ACPE has designed this document and evaluate professional pharmacy programs. Compliance to Standards 2016 ensures graduates of a professional pharmacy programs are practice-ready, team-ready, and prepared to directly to contribute to patient care and collaborate with other healthcare providers.

Under Appendix 1 of Standards 2016, lists the required elements of the didactic doctor of pharmacy curriculum. It outlines the expectations that students will develop, retain, recall, build upon and apply knowledge to deliver quality patient care. One subsection of the required elements of the didactic doctor of pharmacy curriculum is called "Social/Administrative/Behavioral Sciences." A sub-subsection is labeled "Research Design."

ACPE defines research design as follows: “Evaluation of research methods and protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions, and to appropriately evaluate the validity and reliability of the conclusions of published research studies.”

Developing a sound research design is crucial to successfully conducting meaningful and scientifically sound research. Such preliminary stages involve higher-level discussion, planning and answering key questions such as the following:

- What is the objective of the research?
- Determine the dependent (the “effect” or impact) and independent (the proposed cause of effect) variable(s).
- Identify crucial confounding variables.
- Identify specific and measurable indicators for the dependent variable(s).
- Funding and/or budget needed to conduct research.

Answering these questions provides the researcher with the necessary clarity, foundation, and structure to conduct successful and efficient research. In addition, a research design may help avoid and eliminate waste of valuable resources such as time and money.

Currently, UNTSCP does not have a process to or repository (physical or electronic) of classes that offer the opportunity to learn, understand, and/or develop research design. This quality assurance project created a methodology that identified and classified the core and elective classes offered by UNTSCP, which met the "research design" requirements outlined in the 2016 Standards document created by ACPE.

The ACPE outlines four key components to research design, which are as follows:

- Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions
- Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions
- Evaluate the validity of the conclusions of published research studies
- Evaluate the reliability of the conclusions of published research studies

This quality assurance project identified classes, which presented, discussed, tested and/or actively practiced at least 1 of the four key components of research design. To accomplish this, a variety of data-capturing tools were implemented on syllabi and class-materials of classes offered at UNTSCP with potential to follow up through interviews, focus groups and/or surveys of students and faculty as allowed by college leadership.

This quality assurance project addressed an immediate need for the UNTSCP. The results of this study may have the potential to impact pharmacy students, faculty and the administration of UNTSCP. With one of the primary objectives of this quality assurance project is to create and complete a curricular map assessment of student engagement in research design in classes offered by the UNTSCP. Students may use the results of this study to select elective classes necessary to gain further exposure to research design. Further, faculty may use the results to implement changes and/or modifications to class curriculum to increase student exposure to research design. Finally, an immediate need of the data collected by this quality assurance project maybe used to show UNTSCP has complied with the 2016 standards set by the ACPE during the accreditation process.

The following quality assurance project was conducted during a six-month internship practicum at the University of North Texas Health Science Center at Fort Worth (UNTHSC). From UNTHSC, Dr. Jerry Simecka served as the major professor for this project. In addition, Dr. Patrick Clay, Dr. Patricia Gwirtz, and Dr. Victor Uteshev served as essential mentors and advising committee during the internship and the completion of the practicum report.

CHAPTER II

BACKGROUND AND LITERATURE REVIEW

Scholarly activity is creative work that is peer reviewed and publically disseminated according to (Boyer, 1990)[5]. Although scholarly activity may embody many shapes, research is a predominate form. Scholarly activity in the form of research may lead to:

- Discovery of new knowledge
- Development of new technology, methods, materials or uses
- Integration of knowledge leading to new understanding.

Pursuing research is vital as it leads to the betterment of the academic community and society. Research with meaningful conclusions is dependent on the care and consideration taken during the preliminary stages used to collaborate, derive and formulate a research design [10].

Some of the benefits of a formulating research design include [10]:

- It may result in the preferred kind of study with meaningful conclusion.
- Increase potential for reproducible scientific studies.
- Cuts down on inaccuracy.
- Maximizes reliability of results.

- Reduce wastage of time.
- Provides an idea concerning the type of resources needed in terms of money, effort, time, and manpower.

A recent publication, Greer et al (2016) [19] provides a fresh perspective on the quality of pharmacist's research publications. The study was conducted to systematically review previously completed studies in order to determine the effectiveness and harms of pharmacist-led chronic disease management compared to usual care for community-dwelling adults. Of the 63 studies that were reviewed, a significant number provided inconclusive results due to design flaws in the original study. For example, certain studies were conducted on a short terms (<12 months) and possessed small sample sizes leading to imprecise and not significant conclusions. Greer et al (2016) classified the "strength of evidence" of evaluated outcomes. Strengths ranged from insufficient to low to moderate. One may extrapolate based of the review conducted by Greer et al (2016), pharmacists may lack the training or capability of formulating valid research design.

Vishwanathan et al (2014)[20] conducted a systematic review and completed a meta-analysis of published studies in order to investigate effect of medication therapy management interventions with outpatients who possessed chronic illnesses. The review accurately and thoroughly breaks down the poor quality of some publications due to poor methodologies deployed. A combination of inconsistent documentation of the interventions and poor sample sizes led to inconsistent and inconclusive results in the original studies.

Essentially these authors (Greer and Vishwanathan) describe pharmacists failed to conduct scientifically rigorous research. Hence, one may extrapolate a possible lack of skills, understanding, or training in research design.

Upon graduating from pharmacy school, there are numerous career options available to PharmD graduates. This may include careers in clinical pharmacy practice and community pharmacy [15]. A pharmacist may pursue research for personal or professional reasons. According to Roberts et al (2010)[16], pharmacists are driven to pursue research in order to see improvements in patient outcomes. Hence, pharmacists may pursue research to better serve his or her patients. Although there may be many factors that led pharmacy students to engage, train and/or conduct research, one significant reason documented in academic literature is: better serve his or her patient.

One of the goals of UNTSCP is its desire to train its students to enter any area of pharmacy practice or pharmacy residency. One way UNTSCP may accomplish this goal is to provide its PharmD candidates with valuable experiences in engaging and/or conducting research. To provide such experiences, the curriculum offered at the UNTSC must accommodate and provide exposure, teaching, and/or training in regards to research design.

A pilot study enlisted 30 participants into a summer program taught, implemented and discussed experimental (research) design Stanley (1966) [14]. The results of a categorical

questionnaire showed that nearly all (29) of the participants felt themselves better equipped to design experiments (research) and analyze data resulting from them [14]. According to this pilot study, exposure to research design provides the resources and the foundation necessary to performing successful and/ meaningful research. Although this may seem redundant, literature is available to support this claim.

Upon completing a preliminary literature search, there has been no documentation of studies conducted to analyzed the curriculum offered by an academic institution of pharmacy in order to create a curricular map which assesses student engagement in "research design" based on the definitions established by ACPE in 2016 Standards.

This scope was too narrow and had to be expanded. The next set of literature reviews involved searches using keywords "curricular mapping" and "pharmacy." One of the primary objectives of the study conducted by Ramia et al (2016)[17] was to determine if personal and professional development (PPD) subdomains was integrated into a pharmacy curriculum. A supplementary objective included identifying gaps related to the subdomains' learning objectives. PPD subdomains include self-assessment, leadership, innovation and entrepreneurship, and professionalism. Four distinct data collection tools were implemented to obtain the necessary data. Mapping involved looking into the school's program educational outcomes, curriculum enacted by faculty, and learned curriculum by students. Finally the students were required to show PPD-related competencies using standardized scoring rubrics.

The result of this study showed PPD skills were integrated at differing depths and breadths in the curriculum [17]. Gaps relating the subdomains' learning objectives were identified [17]. This discovery led separate investigations to address the gaps between the PPD subdomains and the curriculum [17].

This publication establishes the merit of conducting a scientific study in order to map a curriculum for factors of interest. This study provides foundation to develop the methodology necessary to conduct this quality assurance project. Ramia et al (2016) examined showed where PPD subdomains could be found in the established curriculum. In addition, gaps related to the subdomains were identified, and changes can be made to address these issues. This study provides support to importance of conducting this quality assurance project. Ramia el al(2016) demonstrates that academic institution will not only be able to utilize the results of the study, but benefit as well.

This study is fundamentally similar to the quality assurance project. This study provided an example to how to conduct an assessment in order to map PPD subdomains in a pharmacy school's curriculum. The quality assurance project will implement similar data collection tools, but strictly investigate and identify the classes that meet the 2016 standards for "research design" outlined by ACPE.

A study conducted by Noble et al (2010)[37] provided a broad exploration of the bachelor of pharmacy (BPharm) at The University of Queensland in Australia for opportunities for student engagement in curricular domains of knowing, acting, and being. Noble et al (2010) provided the methods necessary to conduct content analysis. Content analysis can simply be defined as the process of summarizing and reporting written data according to (Cohen 2011:495) [36]. Content analysis places an emphasis outlining the systematic set of procedures needed for the examination, analysis, and verification of the contents of written data. Noble et al (2010) uses 11 steps to effectively conduct content analysis. This study is key because it will aid in creating the methodology needed examine curriculum at UNTSCP.

A study conducted by Murphy et al (2007)[35] used a questionnaire to survey 88 schools and colleges of pharmacy which requested 4 different pieces of information which include: formal research-related classwork, required student research experiences, other research-related class or activities, and perception of student-conducted research. The studied factors associated to research-related classwork involved research methods, statistics, and drug information/literature evaluation. The importance of this article is in the methods used to conduct a survey to obtain information. The survey was not provided. Murphy et al (2007) pretested the survey to a small group, and made slight revision before mailing out to the 88 schools and colleges of pharmacy. Another important aspect of the study was the data analysis. Descriptive analysis such as mean, standard deviation, and frequency count was used to describe the data collected.

Again, elements of the methods used by Murphy et al (2007) will be implemented in the quality assurance project. Murphy et al (2007) provided a brief overview of the methodology and data analysis needed when implementing and analyzing surveys. Such surveys were used to evaluate research-related classwork and research experiences in academic institutions of pharmacies.

SPECIFIC AIMS

It is paramount that a student becomes familiar with research design if he or she wishes to participate and/or conduct valid, reliable, and meaningful research. Upon review, a fundamental problem arises. Currently, UNTSCP does not have a process or a methodology developed to analyze its curriculum to identify classes within its curriculum that have met the requirements of "research design" as outlined by the ACPE in 2016 Standards document. UNTSCP also does not have a physical repository of the classes within its curriculum that offer the opportunity to learn, understand, and/or develop research design.

This thesis project, which has been labeled as a quality assurance project, possesses 4 specific aims:

- Create a methodology necessary to identify and classify core and elective classes offered by UNTSCP, which meet requirements of "research design" as outlined by the ACPE in 2016 Standards document.
- Create a physical repository of classes, which have provided the opportunity to learn, understand, and/or develop research design based on the requirements set by ACPE outlined in the 2016 Standards document.
- Determine the identity and number of classes of UNTSCP, which present the potential for student engagement in research design.

SIGNIFICANCE

The significance of conducting this quality assurance project is the potential impact it can have on the students, faculty, and administration of UNTSCP. There are two potential products of upon completion of this study. First, this study helped create a methodology necessary to identify classes offered by UNTSCP, which provided students the opportunity to learn, understand, and/or develop research design. Second, a physical repository of classes, which have provided the opportunity to learn, understand, and/or develop research design, has been created.

Upon gradating from UNTSCP, pharmacy students have a variety of careers, which they may choose to pursue. Pharmacy students who are interested in pursuing a career or partake in in academic research, may require additional training or take class work that increases their exposure to research design. The physical repository of classes, which will be created upon completion of this quality assurance project, will serve as a tool providing vital information. Pharmacy students may use this tool to see which classes offered at UNTSCP will provide the exposure to research design. Students may choose to take certain elective classes or students may choose to further engage in certain core classes in order to gain, improve, or cement their current knowledge and expertise in regards to research design.

Faculty may use the results of this study to elicit changes to the class curriculum. This may involve changes to the entire curriculum offered by UNTSCP or changes to individual

classes. Examples of such changes to the curriculum may include additional time spent explaining concepts of research or additional time spent reading and critiquing academic literature. Such changes may lead to improvement in student training and/or enhance the curriculum to incorporate more exposure to research design.

Faculty participating in academic research may choose to use this repository of classes to recruit students as research assistants. Students who have successfully completed certain classes will have obtained the necessary background knowledge pertaining to research design. With the exposure and experience involving research design, students will be better equipped to aiding faculty who are conducting academic research. This may lead to the increased completion of valid and reliable research conducted by the faculty at UNTSCP.

From the perspective of both the student and faculty, it is crucial to understand the level of exposure a pharmacy program provides towards research design. Exposure to research design provides the opportunity to develop and train fundamental skills necessary to be successful as a student and scientist. Learning, understanding, and/or developing research design is essential to developing and training fundamentals skills such as logic and critical thinking.

All colleges of pharmacy are required to undergo accreditation. The administration of UNTSCP has its first full accreditation review in May 2017. To prepare for this, UNTSCP has to demonstrate it is in compliance to requirements found in the 2016 Standards documents

established by ACPE. The administration of UNTSCP may use the results of this quality assurance project to show its compliance/adherence to the 2016 standards in the section detailing "Research Design." Successfully complying with the rigorous standards of the accreditation process is crucial for UNTSCP in order to remain a prestigious institution whilst educating and training students to enter the field of pharmacy.

During the on-site accreditation process, the graduating students are asked to complete the *"American Association of College of Pharmacy Graduating Student Survey."* The results of this survey are used to validate the claims made by the faculty during the accreditation process. Question 69 found in Section VI inquires about the student's experience about research and research design [40]. Here arises another problem. The administration and faculty currently do not have an established tool to gauge the student's perception towards research design. The significance and rationale of completing this quality assurance is two-fold. First, the results of this study will show the classes which present the potential to provide student engagement to research design. Second, the results of the student questionnaire will provide the administration and faculty insight into student's perceived the level of exposure to research design. This data will be useful to the faculty and administration in order to create the appropriate changes to fix any gaps in the curriculum or provide more opportunities towards learning, understanding and/or designing research design.

As colleges in Texas experience a general trend of continued decrease in first

professional applicants (Figure 1), the administration of UNTSCP experiences growing competition to fill its class seats with motivated and qualified students. UNTSCP can improve its marketability by providing evidence of the research design instruction in its curriculum. This novel distinction among regional competitors for students could permit UNTSCP to attract a larger percentage of higher quality students desiring training in research.

First Professional Application Trends 1998-2015

		Academic Year		
Institution	Gender	2012-13	2013-14	2014-15
Houston	Male	270	333	264
	Female	463	490	377
	Total	733	823	641
Incarnate Word	Male	202	219	194
	Female	389	349	283
	Total	591	568	477
North Texas	Male	61	323	161
	Female	81	419	219
	Total	142	742	380
Texas A&M	Male	247	196	209
	Female	390	299	274
	Total	637	495	483
Texas at Austin	Male	291	242	232
	Female	470	420	353
	Total	761	662	585
Texas at Tyler	Male			117
	Female			150
	Total			267
Texas Southern	Male	146	141	241
	Female	240	229	350
	Total	386	370	591
Texas Tech	Male	339	333	322
	Female	539	453	409
	Total	878	786	731

Table 1: First Professional Application Trends for Academic Years 2012-2015 for College and Schools of Pharmacies in the state of Texas[34]

The results of this quality assurance project may lead to increased reproducible and meaningful research conducted by students and faculty at UNTSCP. This may be a result of changes leading to improved and/or increased research design experiences in the offered curriculum. Although this quality project plans on assessing the UNTSCP, the results of this project could led to assessments done in other schools within UNTHSC such as School of Public Health, School of Health Professionals, and Texas College of Osteopathic Medicine (TCOM).

Based on the 2015 year-end fiscal reports of UNTHSC, the academic institution had spent $33.9 million [11] on research. With greater exposure and understanding of research design, students and faculty may pursue increased quantity and improved quality of academic research. From a financial standpoint this will greatly benefit UNTHSC; as it could be a possibility to increase the quantity and/or quality of the scholarly activity generated with the same parameters of the available financial budget.

MATERIALS AND METHODS

Three stages need to undertaken in order to achieve the specific aims outlined above. Refer to Figure 1 to obtain a brief overview of the 3 stages. This quality assurance project will complete a curricular mapping assessment of the classes offered in UNTSCP, which meet the requirements of "research design" as outlined by the ACPE in 2016 Standards document

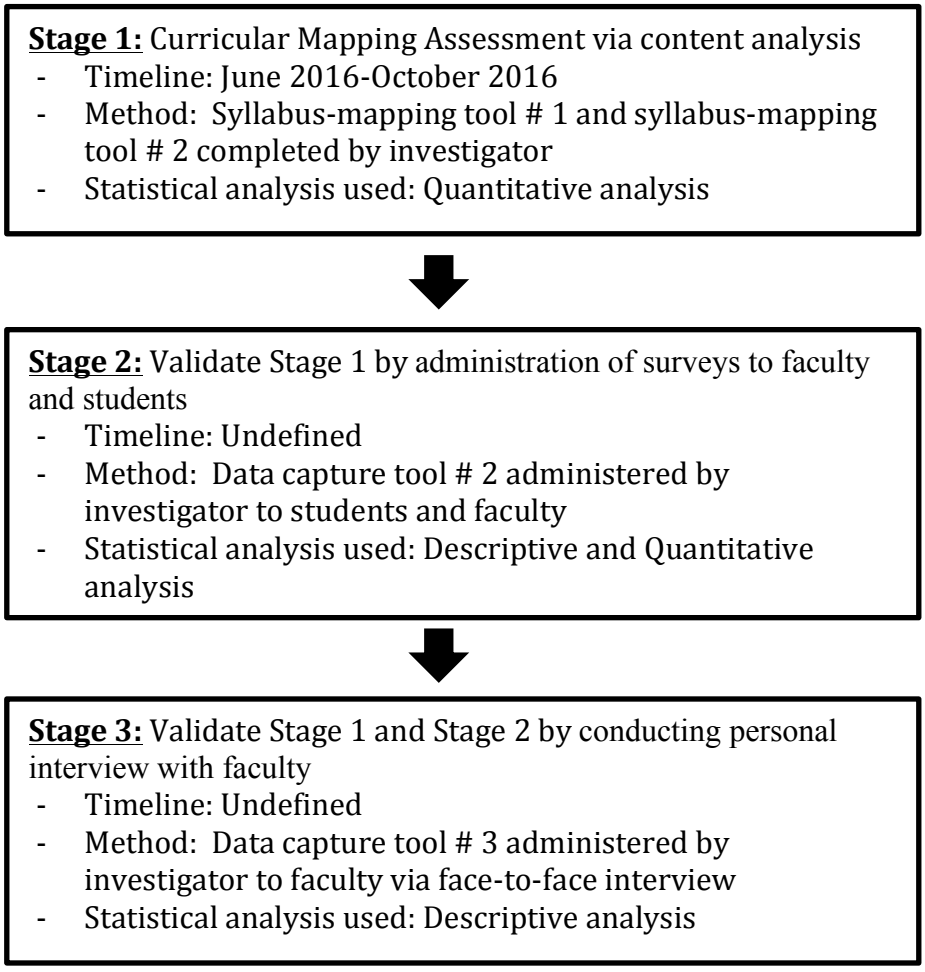


Figure 1: Brief overview of the 3 stages of the quality assurance project

Stage 1:

Stage 1 is executed through completing a curricular mapping assessment. Curriculum mapping is the process of indexing or diagraming a curriculum to identify factors of interest. Stage 1 of this quality assurance project was designed to follow 10 steps of content analysis (Table 2). This procedure will be very similar to the content analysis conducted by Noble et al (2010). Content analysis creates a systematic process for the examination, analysis, and verification of the contents of class syllabi and materials offered by UNTSCP. It allows investigators to make replicable and valid inferences from the evaluated texts [37].

Content Analysis	**Applied to this Quality Assurance Project**
1. Define the research question or specific aims to be addressed by content analysis	Create a physical repository of classes, which have provided the opportunity to learn, understand, and/or develop research design based on the definition outlined by the 2016 ACPE standards
2. Define the population from which units of texts are to be sampled	Complete PharmD curriculum at UNTSCP.
3. Define the sample to be included	All core classes offered by UNTSCP with a class syllabi and materials were **included**. 9 elective classes offered by UNTSCP with class syllabi were **included.** Class syllabus and/or class materials from elective classes offered by UNTHSC School of Public Health (which are accepted by UNTSCP towards the PharmD degree) were **NOT included**.
4. Define the context of the generation of the units of texts to be sampled	All class syllabi and class material were present in an online portal available to the faculty members of UNTSCP. Access was obtained and given by internship mentor (Dr. Clay).
5. Define the units of analysis	The unit of analysis was the learning objectives and aims found in the class syllabi and review of available class materials.

6. Decide the key terms and identifying factors used to complete data analysis	Required or supplementary readings of scientific papers were used as a primary identifying factor. Such readings provide an opportunity to learn or engage in the 4 components associated with "research design".
7. Construct the categories for analysis and create data capture tool	Based on the ACPE definition, the 4 components of research design was constructed: • Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions • Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions • Evaluate the validity of the conclusions of published research studies • Evaluate the reliability of the conclusions of published research studies The data capture tool in order to complete Stage 1 will be the syllabus-mapping tool. Please refer to figure 2 below.
8. Conduct the data collection	Researcher will review and examine class syllabi and class-materials. If there is any evidence of the 4 components associated with research design, the appropriate column/row combination will be checked in the appropriate syllabus-mapping tool. The process of reviewing and examining class syllabi and class-materials may be repeated based on the discretion of the researcher.
9. Conduct data analysis	Central tendencies (percentages and mode) will be used to interpret the syllabus-mapping tool # 2.
10. Proceed to Stage 2 and Stage 3	

Table 2: Summary of the 10 steps of Content Analysis necessary to carry out Stage 1

In order to complete the curricular mapping assessment, the class syllabi, presentations (as applicable) and class-materials must be reviewed and examined. The class syllabus was the

primary document reviewed and examined. The class syllabus was selected to review because it is a written document that communicates the learning objectives, and the educational intentions and outcomes. It provides guidance and a brief overview of the topics that will be conveyed to the students possibly via lecture, class discussion, and/or assignments. Class materials were the secondary documents that were reviewed and examined based on availability. Class materials were analyzed because the document expands and provides knowledge necessary to complete and understand the learning objectives set by the class syllabus.

The faculty of UNTSCP possessed an online drive, which contained the class syllabi and class materials from 66 classes. All core classes offered by UNTSCP with a class syllabi and materials were included. Nine elective classes offered by UNTSCP with class syllabi and materials were included. PharmD candidates of UNTSCP may choose to take elective classes offered by School of Public Health of UNTHSC in order to meet the PharmD degree requirements. Classes offered by School of Public Health of UNTHSC were not included. These classes are excluded from review because these classes are not subject to the standards set by ACPE.

Using these documents and the UNTSCP website, a preliminary UNTSCP class profile was created. The UNTSCP class profile lists all of the classes taken by PharmD candidates based on year classification (Ex. pharmacy year 1) and semester (Ex. Fall, Spring, Summer). Please refer to Appendix A for the UNTSCP class profile.

Prior to conducting data collection of Stage 1, data-capture tools must be created. The data capture tools associated with Stage 1 is called a "syllabus-mapping tool". The function of the "syllabus-mapping tool" is to capture the data when conducting data collection necessary to assess the curriculum for the 4 components of research design defined by ACPE.

Stage 1 requires the uses of two different syllabus-mapping tools:

- Syllabus-mapping tool # 1
- Syllabus-mapping tool # 2

Two different syllabus-mapping tools needed to be created. Syllabus-mapping tool #1 is used to capture data and present the results of the curricular mapping assessment of one individual class within UNTSCP. Figure 2 is a snapshot of the syllabus-mapping tool #1 created for class 7352.

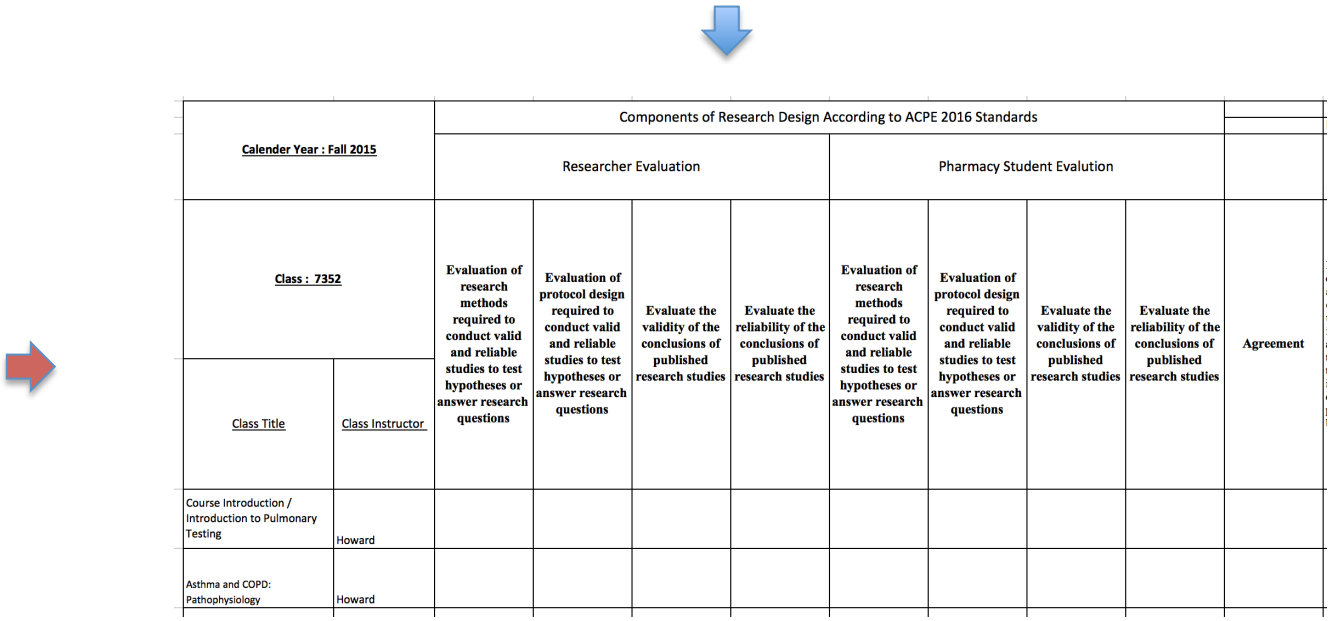
In order to create a template of syllabus-mapping tool # 1, one must first understand the components and structure the respective mapping tool. The syllabus-mapping tool #1 assumes a tabular form.

The row group of the table (Figure 2) presents the information in regards to class, class title and class instructor. One would use the class syllabus to obtain this information. Class title

is the name the syllabus assigns to a particular lecture. Class instructor is the name of the faculty member who is responsible to deliver instruction to the respective class title.

The column group of the table (Figure 2) holds information in regards to researcher evaluation, pharmacy student evaluation and the components of research design as defined by ACPE.

Refer to Figure 2 to see the components and structure of syllabus-mapping tool #1. In addition, Figure 2 provides the location of row group and the column group found in the syllabus-mapping tool #1.



Calender Year : Fall 2015		Components of Research Design According to ACPE 2016 Standards								
		Researcher Evaluation				Pharmacy Student Evalution				
Class : 7352		Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions	Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions	Evaluate the validity of the conclusions of published research studies	Evaluate the reliability of the conclusions of published research studies	Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions	Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions	Evaluate the validity of the conclusions of published research studies	Evaluate the reliability of the conclusions of published research studies	Agreement
Class Title	Class Instructor									
Course Introduction / Introduction to Pulmonary Testing	Howard									
Asthma and COPD: Pathophysiology	Howard									

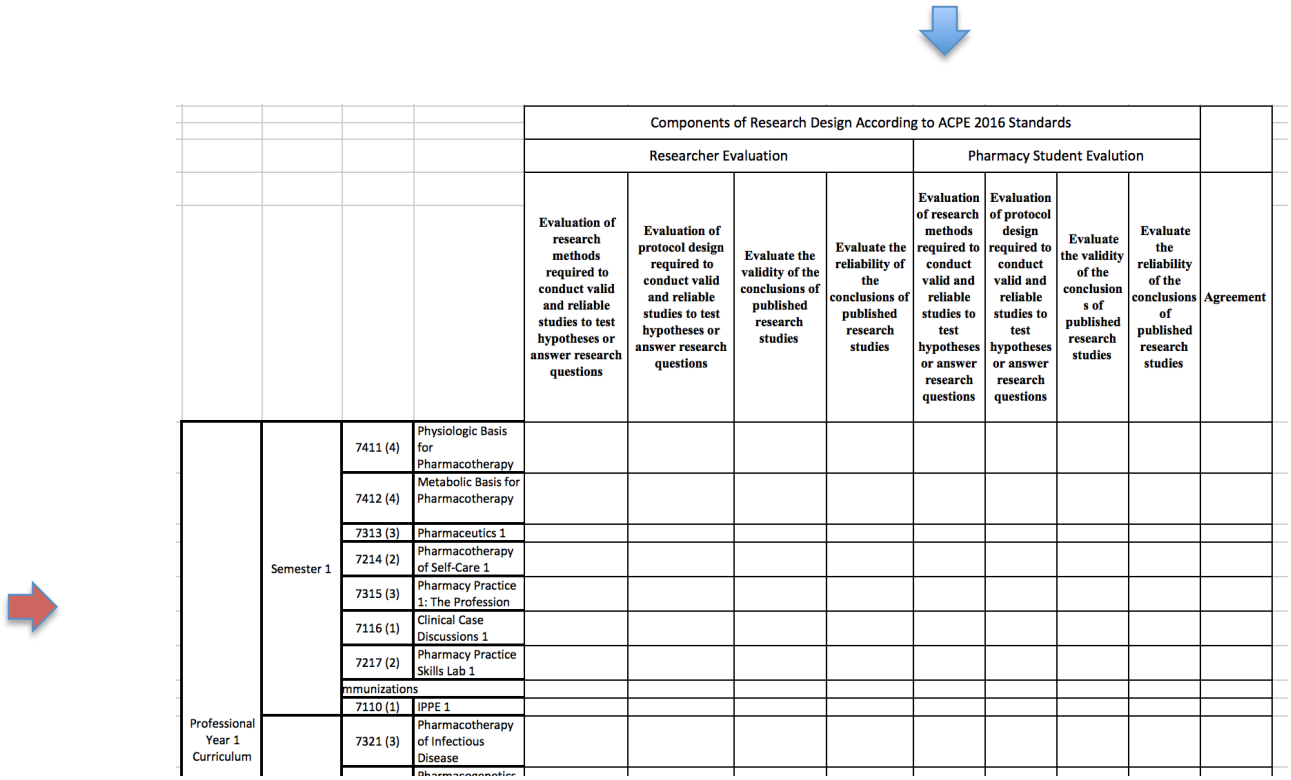
Figure 2: Snapshot of syllabus-mapping tool # 1 for Class 7352. The components and structure of syllabus-mapping tool #1. Row group (red arrow) and Column group (blue arrow)

Syllabus-mapping tool # 2 is used to capture data and present the results of the curricular mapping assessment the entire body of classes offered at UNTSCP, which has been evaluated during this quality assurance project. This would entail all of the core classes and some of the electives class offered by UNTSCP. Figure 3 is a snapshot of the syllabus-mapping tool #2. This is only a snapshot, but the remainder of the classes.

In order to create a template of syllabus-mapping tool # 2, one must first understand the components and structure the mapping tool. The syllabus-mapping tool # 2 assumes a tabular form, which is similar to syllabus tool # 1 with differences found in the row group. In syllabus-mapping tool # 2 the row group is organized based on professional year, semester type, class

number and class name. Refer to Figure 3 to see the structure and components of the row group of syllabus-mapping tool # 2.

The column group of the table of syllabus-mapping tool # 2 is the same as syllabus-mapping tool # 1. The column group of the table holds information in regards to researcher evaluation, pharmacy student evaluation and the components of research design as defined by ACPE. Refer to Figure 3 to see the structure and components of column group of syllabus-mapping tool # 2.



				Components of Research Design According to ACPE 2016 Standards								
				Researcher Evaluation				Pharmacy Student Evalution				
				Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions	Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions	Evaluate the validity of the conclusions of published research studies	Evaluate the reliability of the conclusions of published research studies	Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions	Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions	Evaluate the validity of the conclusions of published research studies	Evaluate the reliability of the conclusions of published research studies	Agreement
Professional Year 1 Curriculum	Semester 1	7411 (4)	Physiologic Basis for Pharmacotherapy									
		7412 (4)	Metabolic Basis for Pharmacotherapy									
		7313 (3)	Pharmaceutics 1									
		7214 (2)	Pharmacotherapy of Self-Care 1									
		7315 (3)	Pharmacy Practice 1: The Profession									
		7116 (1)	Clinical Case Discussions 1									
		7217 (2)	Pharmacy Practice Skills Lab 1									
		mmunizations										
		7110 (1)	IPPE 1									
		7321 (3)	Pharmacotherapy of Infectious Disease									

Figure 3: Snapshot of syllabus-mapping tool # 2. The components and structure of syllabus-mapping tool #2. Row group (red arrow) and Column group (blue arrow)

Data collection begins by reading and reviewing individual class syllabi and class materials. These units of analysis are screened based on key terms and primary identifying factors. Key terms are terminologies that are associated with the 4 components of research design. These key terms were generated by the investigator and via discussions with 2nd, 3rd, and 4th PharmD candidates from UNTSCP. During the review and examination process, if there were any evidence of the 4 components associated with research design present in the class syllabus and class materials, this would be considered as a positive hit. To document this positive hit, the letter "x" was placed into appropriate column/row combination in syllabus-mapping tool

1 and syllabus-mapping tool # 2. The placement in "x" in the appropriate box combination represents the potential opportunity for student engagement in research design in that particular class.

The data collection process of Stage 1 was expanded to review and examine additional categories of analysis. Syllabus-mapping tool # 1 and syllabus-mapping tool # 2 was expanded to include domains, subdomains, and individual learning outcomes associated with research design as assessed by the Center of Advancement of Pharmacy Education (CAPE).

Stage 1 Data analysis:

The placement in "x" describes a positive hit. This represents the potential opportunity for student engagement in research design in that particular class. This form of analysis is descriptive. More forms of advanced analysis are possible when interpreting and analyzing this data. For example, another investigator could proceed to complete a review and examination of the class syllabi and materials. The data from both investigators can be analyzed for agreement through calculating and identifying the Cohen's kappa value.

Central tendencies (percentages and frequency) are used to interpret the quantitative data. This will help identify percent breakdown and frequencies of the 4 components associated with

research design. A visual presentation of syllabus-mapping tool # 1 and syllabus- mapping tool # 2 will help convey the results of this quality assurance project.

Future Steps:

Stage 2:

The purpose of executing Stage 2 is to verify the data collection and analysis performed in Stage 1. Stage 2 entails the use of students and faculty to verify the findings from Stage 1 through the administration of data-capture tool #2. Data-capture tool # 2 is an online questionnaire, which will be administered to the students and faculty through Qualtrics. The questionnaire is designed to using close-ended questions. The close-ended questions will have answer choices taking the form of multiple-choice. Based on the experiences of the internship, providing close-ended questions limited the chance of error and/or miscommunication.

The data collection and analysis completed during Stage 1 guides the construct of student and faculty online questionnaire, which will be deployed during Stage 2.

Initial Student online Questionnaire Methodology:

Initial structure of the online questionnaire involved giving every student approximately 26 questions, which will assess a single student's engagement of all 4 components of research design. Certain questions would have asked students to use a menu to select all the classes they have taken at UNTSCP, pertaining to engagement on all 4 components of research design.

Please refer to Appendix C for the initial set sample questions that will be answered via data-capture tool #2 (online questionnaire) by the students at UNTSCP.

Final Student online Questionnaire Methodology:

Upon further research, and advice from committee members, the initial approach to the student online questionnaire methodology changed. The following macro and micro scale deployment of the online questionnaire was designed to optimize response rates and value of the data collected.

Macro Scale:

Questionnaires will be administered to current enrolled pharmacy students. Questionnaires will be administered to individual classes electronically and via email. All the responses to the administered questionnaire will pertain to that particular class. The data collected from the responses to questionnaires administered to class 7411 will ONLY pertain to class 7411.

Micro Scale:

Within each class, students will be randomly assigned to four different clusters (A-D). Students assigned to cluster A will be assigned to complete Questionnaire Cluster A. This pattern will continue for the remainder of the clusters.

A goal when employing this methodology is to improve response rates and the need to obtain honest and truthful responses from the students. Decreasing the number of questions and narrowing the scope of the online questionnaire will ideally help achieve such goals set above.

The data-capturing tool # 2 was administered on a test population. The test population, which was sampled, was selected through convenience sampling. Students from different colleges of UNTHSC were asked to take online questionnaire and provide feedback.

Using the feedback from this test population, slight modifications were made to the online questionnaire were made in order to increase clarity.

Please refer to Appendix D for the final set sample questions that will be answered via data-capture tool #2 (online questionnaire) by the students at UNTSCP.

Faculty online Questionnaire Methodology:

The 16 questions will be asked on the online questionnaire, which will be administered to the faculty. The questions will access the instruction of the 4 components of research design. A unique characteristic of this online questionnaire will include a drop-down menu of the all of the classes offered at UNTSCP. Faculty members will be able to select courses where they have provided instruction in regards to the 4 components of research design.

Please refer to Appendix E for sample questions that will be answered via data-capture tool #2 (online questionnaire) by the faculty at UNTSCP.

Stage 3:

Stage 3 will utilize data-capturing tool # 3 to conduct personal interviews with the faculty of UNTSCP to obtain additional information that could not be attained after completing Stage 1 and Stage 2. The interview will be composed of open-ended questions, giving the freedom and opportunity for the faculty member to provide meaningful feedback. The feedback obtained from the face-to-face interview will help evaluate and critique the methodology, data collection, and analysis executed in Stage 1 and Stage 2. The responses of the interview will be recorded using data-capturing tool # 3. These responses will be used to make the appropriate changes to the methodologies of Stage 1 and Stage 2. Additional questions may be administered to discover and reflect on ideas of how the faculty would like to market curricular research design to current and incoming students.

Based on the data collection and analysis of Stage 2, interview questions will be created upon approval from the advising committee and IRB.

Please refer to Appendix F for sample questions that will be administered via data-capture tool #3 (face-to-face interview) to the faculty at UNTSCP by the investigator.

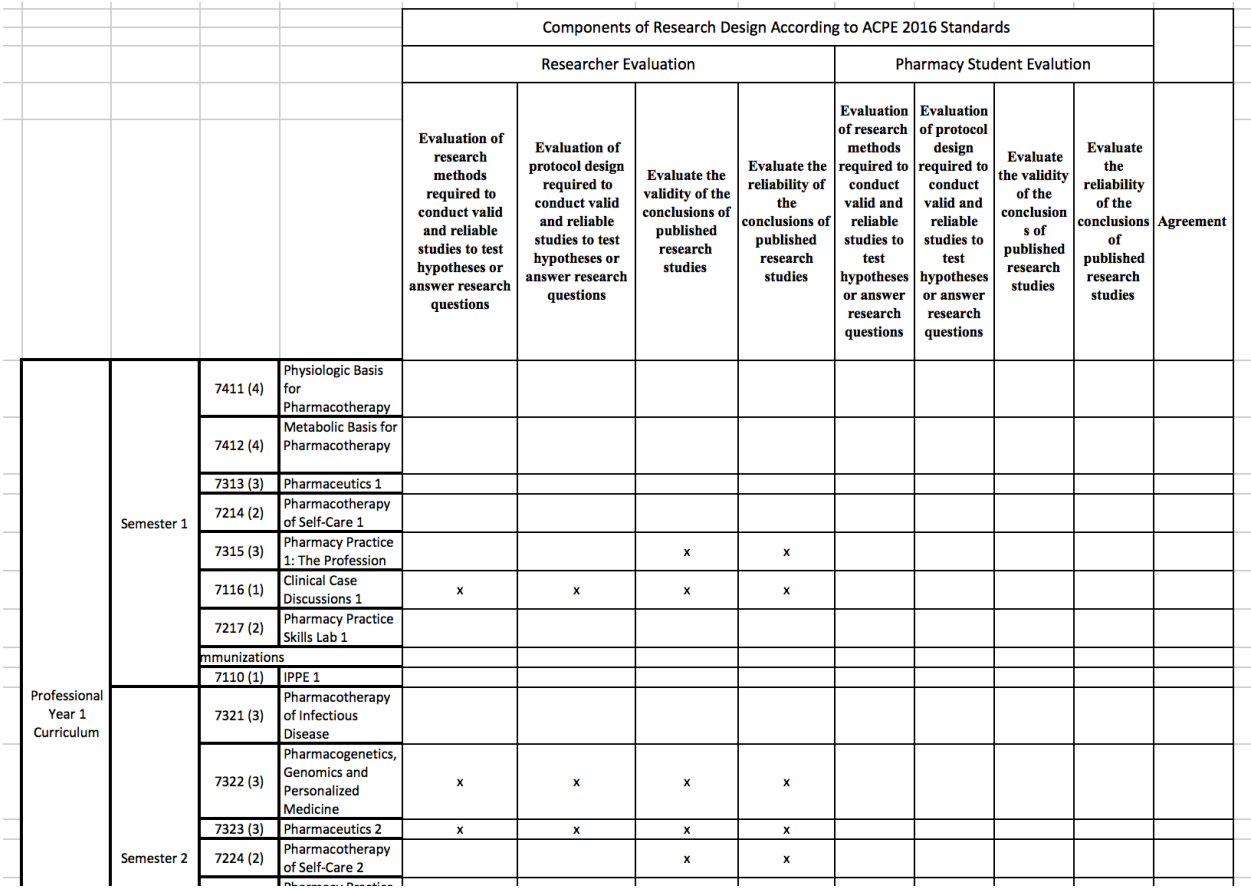
Prior to any data collection, the proposed quality assurance project was discussed with the Chair of the IRB (Dr. Penzak). This is necessary to ensure that Stage 1 of the project is fully compliant with UNTHSC guidelines and does not require IRB review. As this is a quality assurance project, IRB review of Stage 2 and Stage 3 is likely to be "exempt". Regardless, these stages of the quality assurance project will be submitted for consideration of review (and if applicable, approval) to the IRB prior to initiation. Upon approval from the IRB, the appropriate data-capturing tool will be administered to students and faculty.

Please refer to Appendix G for completed "Request for Review of EXEMPT Category Research Project" form for IRB review.

RESULTS

With the general scope and available time to conduct this quality assurance project, only Stage 1 was executed and conducted to completion. The methodology and data-capturing tools of Stage 2 and 3 has been designed, data-capture tools created but has not been executed. Stage 2 and Stage 3 will be undertaken as future projects. Prior to the start of Stage 2 and Stage 3, the methodology and data-capturing tools will have to be reviewed by the UNTHSC Intuitional Review Board (IRB) for approval as "exempt" status.

Upon completing Stage 1, Figure 4 provides a snapshot of the physical repository of classes, which have provided the opportunity to learn, understand, and/or develop research design based on the definition outlined by the ACPE in 2016 Standards document.



				Components of Research Design According to ACPE 2016 Standards								
				Researcher Evaluation				Pharmacy Student Evalution				
				Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions	Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions	Evaluate the validity of the conclusions of published research studies	Evaluate the reliability of the conclusions of published research studies	Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions	Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions	Evaluate the validity of the conclusions of published research studies	Evaluate the reliability of the conclusions of published research studies	Agreement
Professional Year 1 Curriculum	Semester 1	7411 (4)	Physiologic Basis for Pharmacotherapy									
		7412 (4)	Metabolic Basis for Pharmacotherapy									
		7313 (3)	Pharmaceutics 1									
		7214 (2)	Pharmacotherapy of Self-Care 1									
		7315 (3)	Pharmacy Practice 1: The Profession			x	x					
		7116 (1)	Clinical Case Discussions 1	x	x	x	x					
		7217 (2)	Pharmacy Practice Skills Lab 1									
		mmunizations										
		7110 (1)	IPPE 1									
	Semester 2	7321 (3)	Pharmacotherapy of Infectious Disease									
		7322 (3)	Pharmacogenetics, Genomics and Personalized Medicine	x	x	x	x					
		7323 (3)	Pharmaceutics 2	x	x	x	x					
		7224 (2)	Pharmacotherapy of Self-Care 2			x	x					

Figure 4: Snapshot of the physical repository of classes, which have provided the opportunity to learn, understand, and/or develop research design based on the definition outlined by the ACPE in 2016 Standards document.

Figure 5 provides a condensed representation of the data collected after completing Stage 1. Figure 5 strictly presents classes that present classes, which present the potential for student engagement for research design.

				Potential Oppurtunity for Student Engagement in Research Design at UNTSCP
Professional Year 1 Curriculum	Semester 1	7411 (4)	Physiologic Basis for Pharmacotherapy	
		7412 (4)	Metabolic Basis for Pharmacotherapy	
		7313 (3)	Pharmaceutics 1	
		7214 (2)	Pharmacotherapy of Self-Care 1	
		7315 (3)	Pharmacy Practice 1: The Profession	x
		7116 (1)	Clinical Case Discussions 1	x
		7217 (2)	Pharmacy Practice Skills Lab 1	
		mmunizations		
		7110 (1)	IPPE 1	
	Semester 2	7321 (3)	Pharmacotherapy of Infectious Disease	
		7322 (3)	Pharmacogenetics, Genomics and Personalized Medicine	x
		7323 (3)	Pharmaceutics 2	x
		7224 (2)	Pharmacotherapy of Self-Care 2	
		7325 (3)	Pharmacy Practice 2: Communications	x
		7126 (1)	Clinical Case Discussions 2	x
		7227 (2)	Pharmacy Practice Skills Lab 2	
		7120 (1)	IPPE 2	
	Summer 1	7229 (2)	IPPE 3 Community Practice (80 hours)	

Figure 5: Snapshot of the condensed representation of data collected from Stage 1. Data represents potential classes, which provide potential opportunity for student engagement in research design at UNTSCP for Professional Year 1.

Please refer to Appendix H for complete physical repository of classes, which have provided the opportunity to learn, understand, and/or develop research design based on the definition outlined by the ACPE in 2016 Standards document using syllabus-mapping tool # 1.

Please refer to Appendix I for complete physical repository of classes, which have provided the opportunity to learn, understand, and/or develop research design based on the definition outlined by the ACPE in 2016 Standards document using syllabus-mapping tool # 2.

Please refer to Appendix J for the complete (physical repository of classes) condensed representation of data collected from Stage 1, which provide potential opportunity for student engagement in research design at UNTSCP.

Upon completing quantitative analysis of the data collected from Stage 1, Table 3 and Table 4 provide the frequencies and percentages of the core classes from UNTSCP, which have incorporated components of research design of ACPE 2016 Standards.

	Number of Core Classes Which Incorporated Components of Research Design According to ACPE 2016 Standards				
	Total Core Class Count	Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions	Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions	Evaluate the validity of the conclusions of published research studies	Evaluate the reliability of the conclusions of published research studies
Professional Year 1 (PY1)	17	4	4	6	6
Professional Year 2 (PY2)	18	3	3	3	3
Professional Year 3 (PY3)	16	4	4	1	1
Professional Year 4 (PY4)	6	1	1	0	0
Total	57	12	12	10	10

Table 3: Number of Core Classes Which Incorporated Components of Research Design According to ACPE 2016 Standards

	Percentage of Core Classes Which Incoporated Components of Research Design According to ACPE 2016 Standards				
	Total Core Class Count	Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions	Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions	Evaluate the validity of the conclusions of published research studies	Evaluate the reliability of the conclusions of published research studies
Professional Year 1 (PY1)	17	23.53%	23.53%	35.29%	35.29%
Professional Year 2 (PY2)	18	16.67%	16.67%	16.67%	16.67%
Professional Year 3 (PY3)	16	25.00%	25.00%	6.25%	6.25%
Professional Year 4 (PY4)	6	16.67%	16.67%	0.00%	0.00%
Total	57	21.05%	21.05%	17.54%	17.54%

Table 4: Percentage of Core Classes Which Incorporated Components of Research Design According to ACPE 2016 Standards

Upon completing quantitative analysis of the data collected from Stage 1, Table 5 and Table 6 provide the frequencies and percentages of the elective classes from UNTSCP, which have incorporated components of research design of ACPE 2016 Standards.

	Number of Elective Classes Which Incoporated Components of Research Design According to ACPE 2016 Standards				
	Total Elective Class Count	Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions	Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions	Evaluate the validity of the conclusions of published research studies	Evaluate the reliability of the conclusions of published research studies
Elective Classes	9	3	3	3	3

Table 5: Number of Elective Classes Which Incorporated Components of Research Design According to ACPE 2016 Standards

	Percentage of Elective Classes Which Incoporated Components of Research Design According to ACPE 2016 Standards				
	Total Elective Class Count	Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions	Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions	Evaluate the validity of the conclusions of published research studies	Evaluate the reliability of the conclusions of published research studies
Elective Classes	9	33.33%	33.33%	33.33%	33.33%

Table 6: Percentage of Elective Classes Which Incorporated Components of Research Design According to ACPE 2016 Standards

The data was furthered analyzed to identify classes, which present the potential for student engagement for research design at UNTSCP. The following tables provide the frequency and percentages of core and elective classes, which provided students the opportunity to learn, understand, and/or develop research design.

	Total Core Class Count	Number of Core Classes which present the potential for Student Engagement for Research Design at UNTSCP
Professional Year 1 (PY1)	17	6
Professional Year 2 (PY2)	18	3
Professional Year 3 (PY3)	16	4
Professional Year 4 (PY4)	6	1
Total	57	14

Table 7: Number of core classes, which present the potential for student engagement for research design at UNTSCP

	Total Core Class Count	Percentage of Core Classes which present the potential for Student Engagement for Research Design at
Professional Year 1 (PY1)	17	35.3%
Professional Year 2 (PY2)	18	16.7%
Professional Year 3 (PY3)	16	25.0%
Professional Year 4 (PY4)	6	16.7%
Total	57	24.6%

Table 8: Percentage of core classes, which present the potential for student engagement for research design at UNTSCP

	Total Elective Class Count	Number of Core Classes which present the potential for Student Engagement for Research Design at UNTSCP
Elective Classes	9	3
Total	9	3

Table 9: Number of elective classes, which present the potential for student engagement for research design at UNTSCP

	Total Elective Class Count	Percentage of Core Classes which present the potential for Student Engagement for Research Design at UNTSCP
Elective Classes	9	33.3%
Total	9	33.3%

Table 10: Percentage of core classes, which present the potential for student engagement for research design at UNTSCP

	Identity of Core Classes which present the potential for Student Engagement for Research Design at UNTSCP
Professional Year 1 (PY1)	7116, 7126, 7322, 7323, 7325, 7315, 7324
Professional Year 2 (PY2)	7147, 7335, 7345
Professional Year 3 (PY3)	7353, 7354, 7361, 7365
Professional Year 4 (PY4)	7680

Table 11: Identity of core classes, which present the potential for student engagement for research design for each profession year

	Identity of Elective Classes which present the potential for Student Engagement for Research Design at UNTSCP
Elective Classes	7202, 7203, 7375

Table 12: Identity of elective classes, which present the potential for student engagement for research design

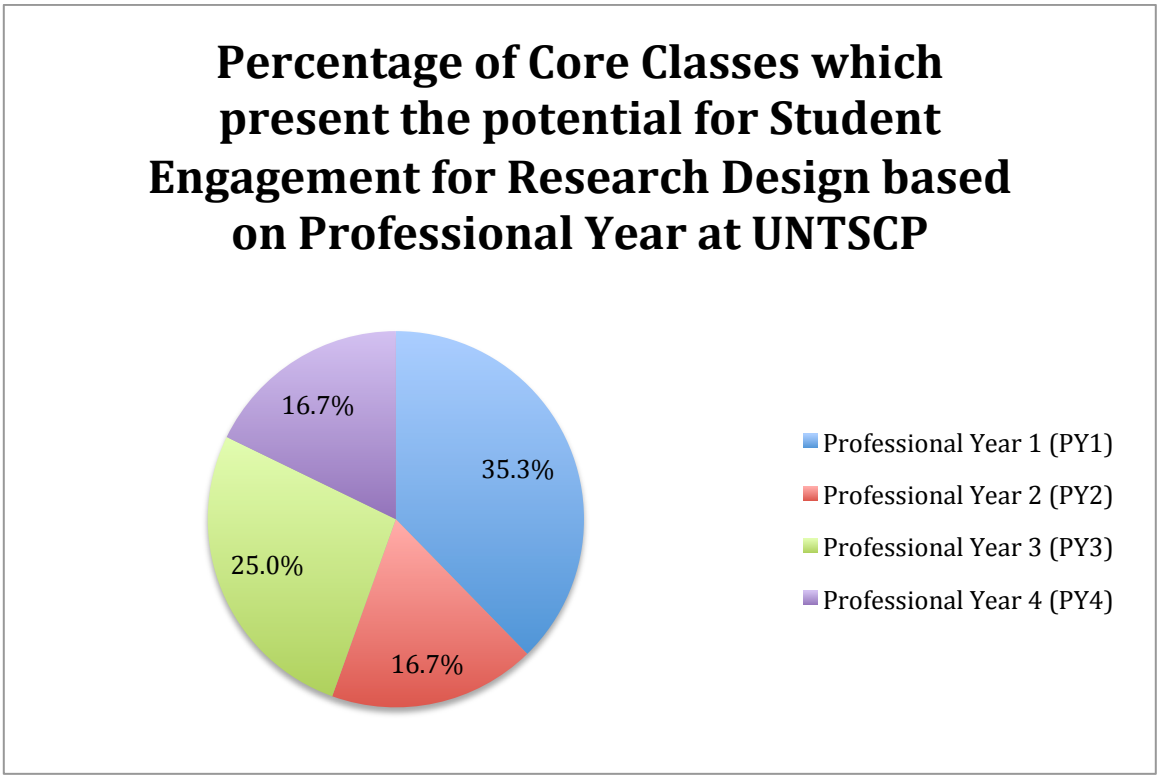


Figure 6: Pie chart representing the percentage breakdown of core classes, which present the potential for student engagement for research design based on professional year at UNTSCP

DISCUSSION

Through the data collection and data analysis of Stage 1, it is clear that the 4 components of research design based on the definition outlined by the ACPE in 2016 Standards document has been integrated throughout the PharmD curriculum (core and elective classes) across all 4 professional years offered at UNTSCP. For the results to hold significance, the data collected from Stage 1 will need to be validated. The execution, data collection, and analysis from Stage 2 and 3 will help validate the findings from Stage 1. The design and implementation of the 3 stages of this quality assurance project complement each other. The 3 stages will provide a complete picture when assessing for research design within the UNTSCP curriculum.

UNTSCP's global vision and motto is "We make healthcare better." One of the goals and visions held by UNTSCP is its ability to contribute to healthcare by providing highly qualified doctors of pharmacy. To uphold high standards, UNTSCP as an institution must undergo constant evaluation and assessment. An area that requires continual systematic review is its student abilities, skills, values, and knowledge. Completing this quality assurance project provides an evaluation and assessment of one specific factor in the curriculum of UNTSCP. Completing Stage 1 of this quality assurance project allowed an assessment to identify classes offered by UNTSCP that meet the 2016 ACPE standards definition of "research design."

Through completing Stage 1 the specific aims of this quality assurance project have been achieved. A methodology necessary to identify classes offered at UNTSCP, which met the ACPE 2016 standards definition of "research design", was created and implemented. A physical repository of the core and elective classes offered by UNTSCP which have provided its students the opportunity to learn, understand, and/or develop research design has been created.

Even with key terms and identifying factors to help identify the 4 components of research, a significant portion of completing Stage 1 is subjective and the data collection process is based on the interpretation of the investigator. It is heavily dependent on the interpretation of the written language presented in the class syllabi and class materials. Key terms and identifying factors was established in attempt to remove this sense of subjectivity. Due to the nature of this quality assurance project and curriculum assessment activity, the examination of class syllabi and materials is subjective in nature. A solution to problem entails to validate the findings from Stage 1. Hence, completing Stage 2 and Stage 3 will provide validity to the findings on Stage 1.

The changes that were made leading up the creation of data-capture tool # 2 administered to the students are essential. The data collection and analysis after implementing data-capture tool # 2 is will help validate the findings from Stage 1. Changes were implemented to the initial student online methodology in order to create the final student online questionnaire methodology. The basis for these changes was a result of taking on the mind-set of a student when completing an optional online questionnaire. These modifications are hopeful attempts to

increasing response rates and obtaining meaningful responses. One of the biggest changes were implemented was the significant decrease of the number of questions students would answer. The total number of questions decreased from 26 to 8. As this is an optional online questionnaire, one may anticipate higher response rates and increased chances of obtaining accurate and meaningful data. In a research study conducted by Edwards et al (2002) [39], the odds of a response rates from postal questionnaires more than doubled when participants were offered monetary incentives. The use of monetary incentives would not be an option for this quality assurance project as it is beyond the scope of this project. Future studies with the necessary funds may choose to in cooperate monetary funds to increase response rates. Another option to increase response rates that may succeed is through the use of academic incentives given to the students in the form of "bonus points" on quizzes or assignments. It should be noted that not only will the response rate increase, but also there is an increased opportunity for students to take more time to provide meaningful responses.

The online questionnaire from Stage 2 does not only provide the means to validate the findings from Stage 1. Questions have been designed to inquire about the methods of delivery and methods of practice of content in regards to the 4 components of research design. Students will be asked about how did they learn about a particular component of research design. In addition, students will be asked about how did they practice a particular component of research design. This additional data gathered will provide useable information and adds depth to the

quality assurance project. Although this is not the scope of this project, the analysis of this additional data will help gain valuable insight into the UNTSCP curriculum.

Completing Stage 2 and Stage 3 provides validity to the data collected and analyzed from Stage 1. One must understand it is possible for the data collected and analyze from Stage 2 to contradict Stage 3 and vice-versa. This difference is valid. In order to identify, understand and resolve this contradiction, a discussion between faculty and student must occur. Discussions can be held on the small scale such as individual classes or held on the large scale such as a public forum. With open communication, clarity between the faculty and students can be achieved.

SUMMARY AND CONCLUSIONS

Through the use of content analysis, a detailed review and examination of syllabi and materials of core and elective classes offered at UNTSCP, we gained new insight into the student learning experience associated to research design. The 4 components of research design have been dispersed in a variety of core and elective classes. This quality assurance project has created the methodology necessary to identify classes offered by UNTSCP, that meet the 2016 ACPE standards definition of "research design" assess a curriculum. Additionally, a physical repository of classes has been identified and classified to have met the ACPE 2016 standards definition of "research design."

The ACPE is an autonomous and independent agency provides professional critique and judgment of the quality of a college or school of pharmacy's professional program and to encourage improvement. With the upcoming UNTSCP accreditation review conducted by ACPE in May 2017, UNTSCP may use the findings of the quality assurance project to show its compliance to the strict and high standards of ACPE. By obtaining accreditation status, UNTSCP will obtain the recognition amongst peer institutions. To remain a leader in the training of pharmacists, UNTSCP must continue to assess and evaluate its curriculum through quality assurance. This will allow UNTSCP to maintain high educator standards and continues to train and produce highly qualified PharmD graduates.

Limitations

A primary limitation to this quality assurance project is the level of detail and clarity provided in the approved class syllabi and presentations (as applicable) of the classes offered at UNTSCP. If there is a lack of detail or clarity in the provided documentation, syllabus-mapping tool # 1 and syllabus-mapping tool # 2 will not effectively capture the components of "research design."

Another limitation to this quality assurance project involves the durability of the methodology developed. ACPE creates changes to its standards every six to eight years. Hence, the definitions set in these standards may be subject to change as well. With such changes, the methodology of conducting the assessment of the curriculum may become ineffective. The methodology will have to undergo revisions when and/if ACPE makes changes to its standards or how "research design" is defined.

Another key limitation to this quality assurance project is the durability of the data collected. The data collected is based on the class syllabi and materials provided by UNTSCP. These materials are subject to change based on the needs of the students and faculty. With the dynamic nature of these documents, the data collected will only be valid until changes are made to the class syllabi and materials. Hence, there is a need for data to be collected on a year-to-year basis. In order to compare from a year-to-year basis, the data extraction tool has to be the same. If the ACPE Standards document and the data extraction tools undergo revision or are changes,

the data collected for that particular year cannot be compared to previous years. Data between years can be compared only if the ACPE Standards and the methodology employed to collect data are the same.

A significant limitation of this quality assurance project is the presentation of the data collected. Due to the vast size of the UNTSCP curriculum, maintaining a paper copy of the physical repository of the classes identified and classified to have met the ACPE 2016 standards definition of "research design," may be challenging.

Future Research

The methodology developed during this quality assurance project provided insight to student engagement of research design within the intended UNTSCP curriculum. This was attained via a systematic review of class syllabi and materials. In order to full assess students engagement of research design within the UNTSCP curriculum, further studies need to be conducted to explore the experienced curriculum. Through the administration of the developed online questionnaire, one can gain valuable input from the perspective of students and faculty of UNTSCP. Completing Stage 2 and Stage 3 will help verify the findings and results of Stage 1. Future research through conducting Stage 2 and Stage 3 will increase the validity of the data gathered and results obtained upon completing Stage 1 of this quality assurance project.

One of the significance of conducting this quality assurance project was the impact it will have on the faculty of UNTSCP. With the exploration of the current state of the curriculum for research design as defined by ACPE, faculty may elicit changes to the class curriculum. Future research may be conducted to see the effectiveness of the changes enacted by the faculty at UNTSCP. One may choose to investigate if there was an increase in student engagement in research design after faculty members of UNTSCP modified the curriculum.

Another perspective future research may try and correlate is the student engagement of research design in the UNTSCP curriculum and student pursuing scholarly activity in the form of research at UNTSCP. This study could conduct quantitative analysis and investigate trends correlating the two variables.

Future research may not always entail pursuing novel investigations. Assuming Stage 1 executed using the UNTSCP curriculum over several years, qualitative data analysis (QDA) methods may be used to analyze this newly collected data. Using these frequencies, trends amongst the following qualitative variables will be examined and summarized. The frequency and trends of student engagement in the components of "research design" found in the following categories:

- Semester (Fall vs. Spring vs. Summer)
- Class type (Required vs. Elective)

- Pharmacy year (P1 vs. P2 vs. P3 vs. P4)
- Faculty Type (Lecturer vs. Researching faculty)

To represent the trends, line graphs will be created, presented, and displayed. Visual representation of this data will provide novel and various summaries of the trends of these qualitative variables.

As discussed above, this quality assurance project assessed the curriculum of UNTSCP. Based on the results and reception of the results of this project led to curricular assessments for research design could be done in other schools within UNTHSC such as School of Public Health, School of Health Professionals, and Texas College of Osteopathic Medicine (TCOM).

Future Research Limitations

A second limitation could be generated from collecting data from students previously enrolled in a course due to recall bias. Such error may compromise the validity of the online questionnaire data. A possible solution to resolving this limitation is to ensure the language used in data capture tool#2 is very simple and clear. This is a crucial as it may limit the ambiguity experienced by the student when completing the data capture tool#2. In addition, verbal discussions in regards to the clarity associated with data capture tool#2 can be occur with the student, faculty, and/or members of the advising committee.

Another possible limitation to this qualitative study, which may hinder the interpretation of the data collected, is the response rate from students after gaining access to data capture tool # 2. In research study conducted by (Watt et al, 2002)[7], the response rates for a paper-based survey and an online-based survey were compared using students. It was found that the paper-based survey possessed a 33.3% (Watt et al, 2002)[7] and a response rate for online-based survey possessed a 32.6% (Watt et al, 2002)[7]. Directly, such a limitation may reduce the volume of data collected after administering data capture tool # 2. In another research study, the overall response rate using an online-based survey was 90.2% (Assemi et al, 2015)[8]. It should be noted the population that was surveyed was faculty members. Email reminders were sent in intervals at the 2 and 4-week mark. A possible solution to resolving this limitation is through the use of multiple verbal and email reminders given to students and faculty members. Through direct and indirect forms of communication, reminders will ask students and faculty to complete the data capture tool#2 in order to increase possibly low response rates.

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CHAPTER III

INTERNSHIP SITE

This quality assurance project was conducted during a six-month internship at University of North Texas Health Science Center at Fort Worth (UNTHSC). From UNTHSC, Dr. Jerry Simecka served as the major professor for this project. In addition, Dr. Patrick Clay, Dr. Patricia Gwirtz, and Dr. Victor Uteshev served as essential mentors and committee members during the internship and the practicum report. I served as an intern to Dr. Patrick Clay. My role was two pronged. My first role involved me providing assistance with Dr. Clay's current projects. My second role involved me conducting my own research project with an end goal of completing and defending this thesis.

JOURNAL SUMMARY

One of my requirements to completing my internship practicum is to conduct my own research project with an end goal of defending my thesis. In addition, I served during as an intern to Dr. Clay at UNTSCP in Fort Worth on various tasks, assignments, and projects.

MODE Form Tracking and Training:

I had taken on the role and duties of a research assistant. Currently, Dr. Clay is working in tandem with the CDC and Walgreens in developing a database containing data from approximately 800 HIV patients. Using approved data collection tools; data has been collected in order to create a baseline database. With the help of the Statistical Analysis System (SAS) program, extraneous or invalid data points from the baseline database have been identified. MODE forms have been created in order to address these issues. These forms have been sent back to the clinics to obtain the correct, missing or confirmation of the invalid data point found in the baseline database. My daily activities involved monitoring and tracking the MODE forms. During the early stages of my internship practicum, I created a template MODE tracker form. This form consolidated and provided a brief overview of important logistical information. Such information-included number of MODE forms sent from UNTHSC to the clinic, number of MODE forms returned to UNTHSC from the clinic, and total number of outstanding MODE forms. From a managerial standpoint, I provided reports to Dr. Clay in regards to how many

MODE forms have been sent and received from the clinics, how many MODE forms need to be processed by UNTHSC, and how many MODE forms have been processed with the baseline database correction. Dr. Clay and I have established protocols to ensure the smooth processing of the MODE forms. In parallel, I paid attention to what entails good clinical practice. I have remained proactive in understanding the role, duties, and responsibilities surrounding Clinical Research Management. I have hosted several training sessions to acclimate new pharmacy students. These students had to become acclimated to how to access and how to properly process MODE forms. In addition, I provide assistance with any other additional tasks Dr. Clay required of me.

Online Clinical Research Course Development:

I assisted Dr. Clay, and his 4th year APPE students on rotation in creating and designing an online clinical research elective course. The ultimate goal of this project is to create an online course that pharmacy students may choose to take as an elective. The target audience is any member of UNTSCP who are interested in learning about clinical research. We convened once a week and discuss key points that need to be presented to the students. Through discussion, we created an outline, structure, and a foundation for the course. In addition, we discuss the most effective method of presenting ideas and concepts to the students. This included the best way to present ideas on a slide. We also discussed any additional activities that the students may complete while learning the material. The goal of this exercise is to increase student engagement

as well as increase the retention of the material. The 4th year APPE pharmacy students provided valuable input in selecting key concepts and the physical creation of the lecture slides that will delivered to the pharmacy students taking the online elective course.

Administrative Liaison:

There are multiple groups with UNTHSC that are involved in the database cleanup process. As a result, I obtained an additional role and served as an administrative liaison between Dr. Clay and the various groups. Such groups include research assistants from the School of Public health, and 4th year pharmacy students who were on their APPE rotations. As a liaison, my duties included scheduling meetings and creating effective communication channels between the various groups participating in the CDC project. I also was responsible in creating protocols in order to properly processing and handle MODE forms. Creating such protocols helped streamline the processing of MODE forms. The protocol also helped create transparent communication channels between the various groups. As an administrative liaison, I was responsible for hosting orientations for new volunteer pharmacy students and newly rotating 4th year APPE students. This provided me a chance to work on my communication and presentation skills.

APPENDIX A

UNTSCP CLASS PROILE

Professional Year 1 (PY1) -- FALL		
Course Number	**Semester Credit Hours**	**Course Title**
PHAR 7411	4	Physiologic Basis for Pharmacotherapy
PHAR 7412	4	Metabolic Basis for Pharmacotherapy
PHAR 7313	3	Pharmaceutics 1
PHAR 7214	2	Pharmacotherapy of Self-Care 1
PHAR 7315	3	Pharmacy Practice 1: The Profession
PHAR 7116	1	Clinical Case Discussions 1
PHAR 7217	2	Pharmacy Practice Skills Lab 1
PHAR 7110	1	IPPE 1

Professional Year 1 (PY1) -- Spring		
Course Number	**Semester Credit Hours**	**Course Title**
PHAR 7321	3	Pharmacotherapy of Infectious Disease
PHAR 7322	3	Pharmacogenetics, Genomics and Personalized Medicine
PHAR 7323	3	Pharmaceutics 2
PHAR 7224	2	Pharmacotherapy of Self-Care 2
PHAR 7325	3	Pharmacy Practice 2: Communications

PHAR 7126	1	Clinical Case Discussions 2
PHAR 7227	2	Pharmacy Practice Skills Lab 2
PHAR 7120	1	IPPE 2

Professional Year 1 (PY1) -- Summer		
Course Number	**Semester Credit Hours**	**Course Title**
PHAR 7229	2	IPPE 3 Community Practice (80 hours)

Total Credits : 40

Professional Year 2 (PY2) -- FALL		
Course Number	**Semester Credit Hours**	**Course Title**
PHAR 7331	3	Immune Based Diseases and Therapy
PHAR 7232	2	Principles of Medicinal Chemistry and Pharmacology
PHAR 7534	3	Integrated Pharmacotherapy: Renal
PHAR 7234	2	Integrated Pharmacotherapy: Dermatology, Ears/Eyes/Nose/Throat
PHAR 7335	3	Pharmacy Practice 3: Pharmaceutical Policy, Public Health and Pharmacoeconomics
PHAR 7136	1	Integrated Pharmacy Recitation 1
PHAR 7137	1	Pharmacy Practice Skills Lab 3
PHAR 7130	1	IPPE 4
PHAR 7xxx		*Elective

Professional Year 2 (PY2) -- Spring		
Course Number	**Semester Credit Hours**	**Course Title**
PHAR 7341	3	Integrated Pharmacotherapy: Endocrine, Male/Female Health
PHAR 7442	4	Integrated Pharmacotherapy: Cardiovascular
PHAR 7343	3	Pharmacokinetics
PHAR 7345	3	Pharmacy Practice 4: Evidenced Based Practice and Drug Literature Evaluation
PHAR 7146	1	Integrated Pharmacy Recitation 2
PHAR 7147	1	Pharmacy Practice Skills Lab 4
PHAR 7140	1	IPPE 5
PHAR 7xxx		*Elective

Professional Year 2 (PY2) -- Summer		
Course Number	**Semester Credit Hours**	**Course Title**
PHAR 7249	2	IPPE 6 Institutional Practice (80 hours)

Total Credits : 34 + Electives

Professional Year 3 (PY3) -- FALL		
Course Number	**Semester Credit Hours**	**Course Title**
PHAR 7451	4	Integrated Pharmacotherapy: Infectious Disease
PHAR 7352	3	Integrated Pharmacotherapy: Respiratory and Gastro-Intestinal
PHAR 7353	3	Integrated Pharmacotherapy: Neurology, Psychiatry and Pain
PHAR 7354	3	Optimizing Wellness
PHAR 7355	3	Pharmacy Practice 5: Management and Drug Safety
PHAR 7156	1	Integrated Pharmacy Recitation 3
PHAR 7150	1	IPPE 7
PHAR 7xxx		*Elective

Professional Year 3 (PY3) -- Spring		
Course Number	**Semester Credit Hours**	**Course Title**
PHAR 7361	3	Integrated Pharmacotherapy: Hematology, Oncology and Transplants
PHAR 7262	2	Integrated Pharmacotherapy: Musculo-Skeletal and Connective Tissue Disorders
PHAR 7263	2	Integrated Pharmacotherapy: Special Populations
PHAR 7264	2	Integrated Pharmacotherapy: Critical Care
PHAR 7365	3	Pharmacy Practice 6: Law and Ethics
PHAR 7166	1	Integrated Pharmacy Recitation 4
PHAR 7160	1	IPPE 8
PHAR 7xxx		*Elective

Total Credits : 32 + Electives

Professional Year 4 (PY4)		
Course Number	**Semester Credit Hours**	**Course Title**
PHAR 7681	6	APPE Required: Inpatient/Acute Care
PHAR 7682	6	APPE Required: Community Pharmacy
PHAR 7683	6	APPE Required: Selective Community or Hospital/Health System Pharmacy
PHAR 7684	6	APPE Required: Ambulatory Care
PHAR 7685	6	APPE Required: Hospital or Health System Pharmacy
PHAR 7680	12	APPE Elective Rotations

Total Credits : 42

APPENDIX B-1

COVER LETTER – STUDENT

Dear (auto-populate first name of student here),

My name is *(insert name)*. I am excited to ask you to be part of an important study that will investigate your level of exposure to research design whilst taking classes at the University of North Texas System College of Pharmacy (UNTSCP).

The Accreditation Council of Pharmacy Education (ACPE) 2016 Standards have outlined the components of research design. I will be analyzing course syllabi and materials in search for the components of research design. I will use the results of my findings to create a curricular map. This map will convey courses which have provided students exposure to research design. As a student, you may use the results of this study to take certain classes to gain exposure or further experiences relating to research design.

The study is titled "A Retrospective Analysis and Curricular Mapping Assessment for Research Design in Courses Offered by the College of Pharmacy at University of North Texas Health Science Center at Fort Worth", and is being carried-out under the guidance of Dr. Patrick G. Clay who is the study's principal investigator.

If you agree to participate, the study will analyze your responses to the attached electronic questionnaire. It contains 26 questions that inquire about your current status, level of exposure to research design topics in a particular course, and your overall satisfaction the exposure in research design and research opportunities at UNTSCP. It will take approximately 15 minutes to complete. Only the research investigators will have access to the information you provide through completing this questionnaire. There is a potential risk of breach of confidentiality. However, the study investigators will take all the necessary precautions to protect your confidentiality as a research participant.

Your participation is voluntary. If you wish to participate in this study, please click on the link and submit your responses by ***(insert date)***. If you do not respond, you are considered to have declined participation in the study. Your responses and participation are anonymous, however the link is specific to your email address. A survey reminder is automatically generated and will be sent 3 days prior to the link closing if you have not completed it.

The best results from this project are only achievable with complete data. However, you can choose to stop the survey at any point. There is a 'save draft' function built in to allow you to come back and complete it later if you cannot do so in a single sitting.

Please make sure that you check the box below, if you consent to and plan on participating in this study. This is how you provide your consent to be a part of the study.

If a study-related problem should occurs, or if you have any questions at any time about the study, you may contact Dr. Patrick G. Clay, Principal Investigator at *Patrick.Clay@unthsc.edu*. If you have questions about your rights as a participant in this study you may contact Dr. Scott Penzak, Chairman of the Institutional Review Board, University of North Texas Health Science Center at Fort Worth at *Scott.Penzak@unthsc.edu.*

Thank you for your time, effort, and consideration.

Sincerely,

(insert name)

APPENDIX B - 2

COVER LETTER – FACULTY

Dear Faculty member,

My name is *(insert name)*. I will be investigating the level of exposure to research design you have provided to your students who have taken classes at the University of North Texas System College of Pharmacy (UNTSCP).

The Accreditation Council of Pharmacy Education (ACPE) 2016 Standards have outlined the components of research design. I will be analyzing course syllabi and materials in search for the components of research design. I will use the results of my findings to create a curricular map. This map will convey courses which have provided students exposure to research design. As a faculty member, you may use the results of this study to modify classes to increase student exposure and experiences relating to research design.

The study is titled "A Retrospective Analysis and Curricular Mapping Assessment for Research Design in Courses Offered by the College of Pharmacy at University of North Texas Health Science Center at Fort Worth", and is being carried-out under the guidance of Dr. Patrick G. Clay who is the study's principal investigator.

If you agree to participate, the study will analyze your responses to the attached electronic questionnaire. It contains 16 questions that inquire about your current status, level of exposure to research design topics in a particular course, and your overall satisfaction the exposure in research design and research opportunities at UNTSCP. It will take approximately 15 minutes to complete. Only the research investigators will have access to the information you provide through completing this questionnaire. There is a potential risk of breach of confidentiality. However, the study investigators will take all the necessary precautions to protect your confidentiality as a research participant.

Your participation is voluntary. If you wish to participate in this study, please answer the attached electronic questionnaire and submit your responses by ***(insert date)***. If you do not respond, you are considered to have declined participation in the study.

You can choose to leave the study at any time. Please contact the study investigators at the number below if you wish to withdraw from the study.

Please make sure that you check the box bellow, if you consent to and plan on participating in this study. This is how you provide your consent to be a part of the study.

If a study-related problem should occurs, or if you have any questions at any time about the study, you may contact Dr. Patrick G. Clay, Principle Investigator at

Patrick.Clay@unthsc.edu. If you have questions about your rights as a participant in this study you may contact Dr. Scott Penzak, Chairman of the Institutional Review Board, University of North Texas Health Science Center at Fort Worth at Scott.Penzak@unthsc.edu.

Thank you for your time, effort, and consideration.

Sincerely,

(insert name)

APPENDIX B -3

COVER LETTER – INSTITUTIONAL REVIEW BOARD

Dear IRB member,

My name is *(insert name)*. The Accreditation Council of Pharmacy Education (ACPE) 2016 Standards have outlined the components of research design. I will be analyzing course syllabi and materials in search for the components of research design. I will use the results of my findings to create a curricular map. This map will convey courses which have provided students exposure to research design. As a student, you may use the results of this study to take certain classes to gain exposure or further experiences relating to research design.

The study is titled "A Retrospective Analysis and Curricular Mapping Assessment for Research Design in Courses Offered by the College of Pharmacy at University of North Texas Health Science Center at Fort Worth", and is being carried-out under the guidance of Dr. Patrick G. Clay who is the study's principal investigator.

Thank you for your consideration.

Sincerely,

(insert name)

APPENDIX C

INITIAL ONLINE STUDENT QUESTIONNAIRE

Initial Student Online Questionnaire:

The following questions will be asked of the students:

1. Have you completed and/or in the process of completing academic courses through the University of North Texas System College of Pharmacy (UNTSCP):
    a. Yes
    b. No

2. What your current classification at the University of North Texas System College of Pharmacy (UNTSCP):
    a. P1 – Pharmacy Year 1 Student
    b. P2 – Pharmacy Year 2 Student
    c. P3 – Pharmacy Year 3 Student
    d. P4 – Pharmacy Year 4 Student

3. Were you **taught** how to evaluate research methods required to conduct valid and reliable studies to test hypotheses or answer research questions upon completing coursework at UNTSCP?
    a. Yes
    b. No
    c. Don't Remember

Following questions will appear if answer was only "Yes"

4. Please select all completed courses in which you were **taught** how to evaluate research methods to test hypotheses or answer research questions:

A list of courses will appear based on the answer Question 2. P1 = 0 classes, P2 = P1 classes, P3 = P1, and P2 classes, P4= P1, P2, and P3

5. How did you **learn** to evaluate research methods required to conduct valid and reliable studies to test hypotheses or answer research questions? (Select all that apply)
    a. Discussion
    b. Lecture Slides
    c. Other: _____

6. Have you **practiced** evaluating research methods required to conduct valid and reliable studies to test hypotheses or answer research questions upon completing coursework at UNTSCP?
    a. Yes
    b. No
    c. Don't Remember

7. Please select all completed courses in which you **practiced** evaluating research methods required to conduct valid and reliable studies to test hypotheses or answer research questions upon completing coursework at UNTSCP:

A list of courses will appear based on the answer Question 2. P1 = 0 classes, P2 = P1 classes, P3 = P1, and P2 classes, P4= P1, P2, and P3

8. How did you **practice** evaluating research methods required to conduct valid and reliable studies to test hypotheses or answer research questions? (Select all that apply)
    a. Assignment
    b. Quiz/Test
    c. Other: _____

9. Were you **taught** how to evaluate protocol design to conduct valid and reliable studies to test hypotheses or answer research questions upon completing coursework at UNTSCP?
    a. Yes
    b. No
    c. Don't Remember

Following questions will appear is answer was only "Yes"

10. Please select all completed courses in which you were **taught** how to evaluate protocol design to conduct valid and reliable studies to test hypotheses or answer research questions:

A list of courses will appear based on the answer Question 2. P1 = 0 classes, P2 = P1 classes, P3 = P1, and P2 classes, P4= P1, P2, and P3

11. How did you **learn** to evaluate protocol design to conduct valid and reliable studies to test hypotheses or answer research questions? (Select all that apply)
    a. Discussion
    b. Lecture Slides
    c. Other: _____

12. Have you **practiced** evaluating protocol design to conduct valid and reliable studies to test hypotheses or answer research questions?
    a. Yes
    b. No
    c. Don't Remember

13. Please select all completed courses in which you **practiced** evaluating protocol design to conduct valid and reliable studies to test hypotheses or answer research questions:

A list of courses will appear based on the answer Question 2. P1 = 0 classes, P2 = P1 classes, P3 = P1, and P2 classes, P4= P1, P2, and P3

14. How did you **practice** evaluating protocol design to conduct valid and reliable studies to test hypotheses or answer research questions? (Select all that apply)

    a. Assignment

    b. Quiz/Test

    c. Other: _____

15. Were you **taught** how to evaluate the validity of conclusions of published research studies upon completing coursework at UNTSCP?

    a. Yes

    b. No

    c. Don't Remember

Following questions will appear is answer was only "Yes"

16. Please select all completed courses in which you were **taught** how to evaluate the validity of conclusions of published research studies:

A list of courses will appear based on the answer Question 2. P1 = 0 classes, P2 = P1 classes, P3 = P1, and P2 classes, P4= P1, P2, and P3

17. How did you **learn** to evaluate the validity of conclusions of published research studies? (Select all that apply)

    a. Discussion

    b. Lecture Slides

    c. Other: _____

18. Have you **practiced** evaluating the validity of conclusions of published research studies upon completing coursework at UNTSCP?

    a. Yes

    b. No

    c. Don't Remember

19. Please select all completed courses in which you **practiced** evaluating the validity of conclusions of published research studies:

A list of courses will appear based on the answer Question 2. P1 = 0 classes, P2 = P1 classes, P3 = P1, and P2 classes, P4= P1, P2, and P3

20. How did you **practice** evaluating the validity of conclusions of published research studies? (Select all that apply)

    a. Assignment

    b. Quiz/Test

    c. Other: _____

21. Were you **taught** how to evaluate the reliability of conclusions of published research studies upon completing coursework at UNTSCP?

    a. Yes

    b. No

    c. Don't Remember

Following questions will appear is answer was only "Yes"

22. Please select all completed courses in which you were **taught** how to evaluate the reliability of conclusions of published research studies:

A list of courses will appear based on the answer Question 2. P1 = 0 classes, P2 = P1 classes, P3 = P1, and P2 classes, P4= P1, P2, and P3

23. How did you **learn** to evaluate the reliability of conclusions of published research studies? (Select all that apply)

    a. Discussion

    b. Lecture Slides

    c. Other: _____

24. Have you **practiced** evaluating the reliability of conclusions of published research studies upon completing coursework at UNTSCP?

    a. Yes

    b. No

    c. Don't Remember

25. Please select all completed courses in which you **practiced** evaluating the reliability of conclusions of published research studies:

A list of courses will appear based on the answer Question 2. P1 = 0 classes, P2 = P1 classes, P3 = P1, and P2 classes, P4= P1, P2, and P3

26. How did you **practiced** evaluating the reliability of conclusions of published research studies? (Select all that apply)

    a. Assignment

    b. Quiz/Test

    c. Other: _____

APPENDIX D

FINAL ONLINE STUDENT QUESTIONNAIRE

The following questions will be asked of the students:

CLUSTER A:

1. Have you completed and/or in the process of completing academic courses through the University of North Texas System College of Pharmacy (UNTSCP):
    a. Yes
    b. No

2. What your current classification at the University of North Texas System College of Pharmacy (UNTSCP):
    a. P1 – Pharmacy Year 1 Student
    b. P2 – Pharmacy Year 2 Student
    c. P3 – Pharmacy Year 3 Student
    d. P4 – Pharmacy Year 4 Student

3. Are you currently enrolled or have taken the following class "_____"?
    a. Yes
    b. No

4. Were you **taught** how to evaluate research methods required to conduct valid and reliable studies to test hypotheses or answer research questions upon completing coursework at UNTSCP?
    a. Yes
    b. No
    c. Don't Remember

5. Were you **taught** how to evaluate scientific experiments upon completing coursework at UNTSCP?
    a. Yes
    b. No
    c. Don't Remember

6. How did you **learn** to evaluate research methods required to conduct valid and reliable studies to test hypotheses or answer research questions? (Select all that apply)
    a. Discussion

b. Lecture Slides

c. Other: _____

7. Have you **practiced** evaluating research methods required to conduct valid and reliable studies to test hypotheses or answer research questions upon completing coursework at UNTSCP?

   a. Yes

   b. No

   c. Don't Remember

8. How did you **practice** evaluating research methods required to conduct valid and reliable studies to test hypotheses or answer research questions? (Select all that apply)

   a. Assignment

   b. Quiz/Test

   c. Other: _____

CLUSTER B:

1. Have you completed and/or in the process of completing academic courses through the University of North Texas System College of Pharmacy (UNTSCP):
    a. Yes
    b. No

2. Are you currently enrolled or have taken the following class "_____"?
    a. Yes
    b. No

3. What your current classification at the University of North Texas System College of Pharmacy (UNTSCP):
    a. P1 – Pharmacy Year 1 Student
    b. P2 – Pharmacy Year 2 Student
    c. P3 – Pharmacy Year 3 Student
    d. P4 – Pharmacy Year 4 Student

4. Were you **taught** how to evaluate protocol design to conduct valid and reliable studies to test hypotheses or answer research questions upon completing coursework at UNTSCP?
    a. Yes
    b. No
    c. Don't Remember

5. Were you **taught** how to evaluate the methodology of scientific experiments in order to test hypotheses or answer research questions upon completing coursework at UNTSCP?
    a. Yes
    b. No
    c. Don't Remember

6. How did you **learn** to evaluate protocol design to conduct valid and reliable studies to test hypotheses or answer research questions? (Select all that apply)
    a. Discussion
    b. Lecture Slides
    c. Other: _____

7. Have you **practiced** evaluating protocol design to conduct valid and reliable studies to test hypotheses or answer research questions?
    a. Yes
    b. No
    c. Don't Remember

8. How did you **practice** evaluating protocol design to conduct valid and reliable studies to test hypotheses or answer research questions? (Select all that apply)
    a. Assignment
    b. Quiz/Test
    c. Other: _____

CLUSTER C:

1. Have you completed and/or in the process of completing academic courses through the University of North Texas System College of Pharmacy (UNTSCP):
    a. Yes
    b. No

2. Are you currently enrolled or have taken the following class "_____"?
    a. Yes
    b. No

3. What your current classification at the University of North Texas System College of Pharmacy (UNTSCP):
    a. P1 – Pharmacy Year 1 Student
    b. P2 – Pharmacy Year 2 Student
    c. P3 – Pharmacy Year 3 Student
    d. P4 – Pharmacy Year 4 Student

4. Were you **taught** how to evaluate the validity of conclusions of published research studies upon completing coursework at UNTSCP?
    a. Yes
    b. No
    c. Don't Remember

5. Were you **taught** how to evaluate the validity of conclusions by of published research studies upon completing coursework at UNTSCP?
    a. Yes
    b. No
    c. Don't Remember

6. How did you **learn** to evaluate the validity of conclusions of published research studies? (Select all that apply)
    a. Discussion
    b. Lecture Slides
    c. Other: _____

7. Have you **practiced** evaluating the validity of conclusions of published research studies upon completing coursework at UNTSCP?
    a. Yes
    b. No
    c. Don't Remember

8. How did you **practice** evaluating the validity of conclusions of published research studies? (Select all that apply)
    a. Assignment
    b. Quiz/Test
    c. Other: _____

CLUSTER D:

1. Have you completed and/or in the process of completing academic courses through the University of North Texas System College of Pharmacy (UNTSCP):
    a. Yes
    b. No

2. Are you currently enrolled or have taken the following class "_____"?
    a. Yes
    b. No

3. What your current classification at the University of North Texas System College of Pharmacy (UNTSCP):
    a. P1 – Pharmacy Year 1 Student
    b. P2 – Pharmacy Year 2 Student
    c. P3 – Pharmacy Year 3 Student
    d. P4 – Pharmacy Year 4 Student

4. Were you **taught** how to evaluate the reliability of conclusions of published research studies upon completing coursework at UNTSCP??
    a. Yes
    b. No
    c. Don't Remember

5. Were you **taught** how to determine if a scientific study is reliable based on factors such as randomization, sample size, and study bias?
    a. Yes
    b. No
    c. Don't Remember

6. How did you **learn** to evaluate the reliability of conclusions of published research studies? (Select all that apply)
    a. Discussion
    b. Lecture Slides
    c. Other: _____

7. Have you **practiced** evaluating the reliability of conclusions of published research studies upon completing coursework at UNTSCP?
    a. Yes
    b. No
    c. Don't Remember

8. How did you **practiced** evaluating the reliability of conclusions of published research studies? (Select all that apply)
    a. Assignment
    b. Quiz/Test
    c. Other: _____

APPENDIX E

ONLINE FACULTY QUESTIONNAIRE

The following questions will be asked of the faculty:

1. Have you provided **instruction** on how to evaluate research methods to conduct valid and reliable studies to test hypotheses or answer research questions while teaching at UNTSCP?
    a. Yes
    b. No
    c. Don't Remember

Following questions will appear is answer was only "Yes"

2. Please select all completed courses in which you provided **instruction** on how to evaluate research methods to conduct valid and reliable studies to test hypotheses or answer research questions:

A list of all courses will appear here

3. How did you provide **instruction** to students on how to evaluate research methods to conduct valid and reliable studies to test hypotheses or answer research questions? (Select all that apply)
    a. Discussion
    b. Lecture Slides
    c. Other: _____

4. How did you **assess student's ability** to evaluate research methods to conduct valid and reliable studies to test hypotheses or answer research questions? (Select all that apply)
    a. Assignment
    b. Quiz/Test
    c. Other: _____

5. Have you provided **instruction** on how to evaluate protocol design to conduct valid and reliable studies to test hypotheses or answer research questions while teaching at UNTSCP?
    a. Yes
    b. No
    c. Don't Remember

Following questions will appear is answer was only "Yes"

6. Please select all completed courses in which you provided **instruction** on how to evaluate protocol design to conduct valid and reliable studies to test hypotheses or answer research questions while teaching at UNTSCP:

A list of all courses will appear here

7. How did you provide **instruction** to students on how to evaluate protocol design to conduct valid and reliable studies to test hypotheses or answer research questions while teaching at UNTSCP? (Select all that apply)
    a. Discussion
    b. Lecture Slides
    c. Other: _____

8. How did you **assess student's ability to** evaluate protocol design to conduct valid and reliable studies to test hypotheses or answer research questions while teaching at UNTSCP?
    a. Assignment
    b. Quiz/Test
    c. Other: _____

9. Have you provided **instruction** on how to evaluate the validity of conclusions of published research studies while teaching at UNTSCP?
    a. Yes
    b. No
    c. Don't Remember

Following questions will appear is answer was only "Yes"

10. Please select all completed courses in which you provided **instruction** on how to evaluate the validity of conclusions of published research studies:

A list of all courses will appear here

11. How did you provide **instruction** to students on how to evaluate the validity of conclusions of published research studies? (Select all that apply)
    a. Discussion
    b. Lecture Slides
    c. Other: _____

12. How did you **assess student's ability to** evaluate the validity of conclusions of published research studies? (Select all that apply)

    a. Assignment

    b. Quiz/Test

    c. Other: _____

13. Have you provided **instruction** on how to evaluate the reliability of conclusions of published research studies while teaching at UNTSCP??

    a. Yes

    b. No

    c. Don't Remember

Following questions will appear is answer was only "Yes"

14. Please select all completed courses in which you provided **instruction** on how to evaluate the reliability of conclusions of published research studies:

A list of all courses will appear here

15. How did you provide **instruction** to students on how to evaluate the reliability of conclusions of published research studies? (Select all that apply)
    a. Discussion
    b. Lecture Slides
    c. Other: _____

16. How did you **assess student's ability to** evaluate the reliability of conclusions of published research studies? (Select all that apply)
    a. Assignment
    b. Quiz/Test
    c. Other: _____

APPENDIX F

FACE-TO-FACE FACULTY INTERVIEW QUESTIONS

1. How many semesters have you taught an academic course at UNTSCP?
2. Do you know what the ACPE is?
3. What is your understanding of the accreditation process?
4. Do you teach research design?
5. Were you responsible for at least 50.1% of course design?
6. Were you the primary instructor for this course?
7. Rate the current level of instruction / practice / student engagement in the topic of "research design"? (1-10 scale, 5 neutral, 1 too much, 10 too little)
    a. Quantity
    b. Level of instruction (intro, developing, mastery)
    c. Importance
8. Based on the online results of your electronic questionnaire, will you implement any changes to the course design of the academic courses you plan to teach in the future?
9. What changes are you planning on making?
    a. Do you plan on increasing / decreasing instruction of "research design"?
    b. Do you plan on increasing / decreasing testing of "research design"?
    c. Do you plan on increasing / decreasing engaging students to the topic of "research design" through the form of assignments / projects etc.?

10. With the current structure of the academic course and time constraints, will you be able to implement such changes?

APPENDIX G

EXEMPT IRB FORM

University of North Texas Health Science Center
Office for the Protection of Human Subjects (OPHS) / Institutional Review Board (IRB)

Request for Review of EXEMPT Category Research Project IRB # _____

ALL research involving human subjects requires review and consideration by the UNTHSC Office for the Protection of Human Subjects (OPHS) and the Institutional Review Board (IRB). Some research projects may be "exempt" from Full Board Review and thus qualify as "Exempt Category" research. To determine if your research project is in this category, provide information using the following form. Note that proof or declaration of Human Subjects Research Training for all study personnel must accompany this form. Also, incomplete applications and supporting documentation will delay OPHS-IRB review and approval of this project. If it is determined that your research project is NOT Exempt category research, you will need to re-submit a full protocol and a completed Expedited IRB Application Form. Attach page if more space is needed for any of the below. Go to website for guidance on what is NOT Exempt.

PROJECT INFORMATION

Faculty Research ☐ **Student Research:** ☒ **Masters** ☐ **Doctoral**

Title of Research Activity:
A Retrospective Analysis and Curricular Mapping Assessment for Research Design in Courses Offered by the College of Pharmacy at University of North Texas Health Science Center at Fort Worth

*Name of Principal Investigator (Faculty Member):*Patrick G. Clay, PharmD, AAHIVP, CPI, CCTI, FCCP

Contact Information- Telephone: x2798 *Email Address: Patrick.Clay@unthsc.edu*

Name of Student Investigator: Karthikeyan Baskaran, BS, MCR-Candidate

Contact Information- Telephone: 832-863-1204 *Email Address: kb0341@my.unthsc.edu*

*Department/Program:*Graduate School of Biomedical Sciences

*Name(s) of each Co-Investigator (Study Personnel):*N/A

Project Description: Briefly state the objective(s) and procedures associated with this project. *Recall that incomplete or unclear information will delay OPHS-IRB review and approval* (**attach page if needed**)*:*

This quality assurance project is being conducted to satisfy the requirements for the internship practicum for the UNTHSC Master of Clinical Research and Management program.

Objective:
The objective of this quality assurance project is to identify courses in the UNT System College of Pharmacy (UNTSCP) that expose students to the Accreditation Council on Pharmacy Education (ACPE) defined areas falling under the term "research design."

Procedures:
1. Create curriculum mapping rubric (data collection / abstraction tool. It is data collection tool #1 in the attached proposal.)
2. Obtain all UNTSCP course syllabi, presentations (as applicable) and those materials listed as required in the syllabus.
3. Examine, extract, and document "research design" topics found in course syllabus and materials using the data collection tool.
4. Create a "map" of research design in the curriculum.

Please see attached Proposal for additional information pertaining to the study. It is formatted to meet the requirements of Clinical Research and Management program.

Educational Practices and Strategies: Yes ☐ **No** ☒ (If Yes, please answer **all** questions below)

Will research involve normal educational practices such as (check appropriate box)?

☐ Regular instructional strategies including those commonly used in a classroom
☐ Special education instructional strategies such as the use of a device for performing skill sets or exercise
☐ Effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods
☐ Other: _____

☐ The study does not involve research in educational practices and strategies

Will research be conducted in an established or commonly accepted educational setting (university or teaching hospital)?

Yes ☐ No☐ [If yes, please answer the question below]

Where will it be conducted?

Is the educational activity itself part of your research or will the educational activity occur regardless of research?

☐ **Yes, it is part of research**

☐ **No, the practices are normal educational practices that will occur regardless of this research project**

Survey or Interview Study: Yes ☒ No ☐ (If Yes, please answer **all** questions AND attach copy of survey instruments and procedures)

Source of subject population: UNT SCP faculty and students

Age Range of subjects to be included in the survey or interview: Adult

Where will the survey/interview occur? (Location of activity): UNT SCP (or via email / online pending UNT SCP administrative approval)

Date(s) survey/interview to be conducted? (Include month and year) FromAugust, 2016 To October, 2016

Will subjects be identified? **Yes ☐ No ☒** Will subject responses be audio, video or digitally recorded? **Yes ☐ No ☒**

Will your subjects include children (under age 18)? **Yes ☐ No ☒ [If Yes, STOP. Project does not qualify as EXEMPT]**

Retrospective Record or Chart Review: Yes ☐ No ☒ (If "Yes", Please check all that apply)

☐ Retrospective review of medical records: Name of hospital or institution from which records will be obtained:

☐ Employment records ☐ Student records ☐ Other records: _____

Name of institution or agency from which records will be obtained:

If a non-UNTHSC unit will provide records, attach letter from that agency/clinic.

The data were collected during Time Period (month and year): From _____ To _____

Will the investigators have access to subject identifiers? **Yes ☐ No ☐**

Will a "master list" of subject identifiers for this data set be kept? **Yes ☐ No ☐** If yes, for how long? _____

If your protocol calls for a "master list" of identifiers then this may NOT qualify for Exempt. Contact OPHS staff for assistance

Use of existing biological specimens: Yes ☐ No ☒ If "Yes", Source of specimens (contact name, entity name and address) and attach description of specimens and origin:

Secondary Data Set Study: Yes ☐ No ☒ If "Yes", Answer all questions.

Source of data:

Were the data originally collected for research purposes: **Yes ☐ No ☐** If yes, by UNTHSC researchers? **Yes ☐ No ☐**

Is the Source "publicly available"? **Yes ☐ No ☐**

Note that "Publicly available" means that the general public can obtain the data. Sources are not considered "publicly available" if access is limited ONLY to researchers. ***NOTE: You must attach a copy of the catalog page/ website page indicating where the dataset can be obtained or located.***

Does the secondary dataset contain personal identifiers? Yes ☐ No ☒

Type of identifier (i.e., name, SSN, address, medical record number, etc.):

Public Benefit or Services Programs

Is the study conducted or subject to approval by the federal department or agency head? ☐ **Yes** ☒ **No**

Is the aim to study, evaluate, or otherwise examine one or more of the following [check appropriate box(es)]?

☐ Public Benefit or Service Programs (i.e. Social Security Services, Medicaid, welfare)
☐ Procedures for obtaining benefits or services under those programs
☐ Possible changes in or alternatives to those programs or procedures
☐ Possible changes in methods or levels of payment for benefits or services under those programs

Taste and Food Evaluation

Will this study involve taste evaluation and/or food quality assessment? ☐ **Yes** ☒ **No**

Is the food approved by the Food and Drug Administration (FDA)? ☐ **Yes** ☐ **No [if No, STOP. This does NOT qualify as Exempt]**

Will wholesome (no additives) food be consumed? ☐ **Yes** ☐ **No**

Are the food ingredients at or below the level found to be safe by the FDA? ☐ **Yes** ☐ **No**

Do you ever intend to publish or present (oral, poster or written) the results of this project? Yes ☐ No ☒

Is an informed consent needed for this research? Yes ☐ No ☒

If yes, this project may NOT be Exempt from Full Board or Expedited IRB review and consideration. Please attach a complete protocol form and synopsis along with this application for further review (see OPHS website for Protocol Form and Summary Format guidelines).

ATTACH TO THIS FORM:

- *Certificate of Human Subjects Training* for **all** study personnel. If such documentation is already on file for *all* key personnel, initial here: _____ [Note that inaccurately claiming that such documentation is on file will significantly delay Review]

(If applicable)

- *Copy of Secondary Data documentation* (examples include: website address or reference information for public use data files; letters of agreement from owners of the dataset, etc.)
- *Copy of Survey or Interview questions* and any research statement or cover letters to be used (if applicable)
- Any other documentation that will assist in a timely review of your project.

SIGNATURES AND ASSURANCE Signature certifies that the Principal Investigator understands and accepts responsibility to ensure that this research and the actions of all project personnel involved in conducting the study will conform to the OPHS-IRB approved protocol, OPHS-IRB requirements/policies and procedures, and all applicable federal regulations.

_____

PRINCIPAL INVESTIGATOR Signature Print Name Date

NOTE: If this is a "Student Project", the Principal Investigator signing above agrees to be fully responsible for all aspects of this project. Ordinarily this person will also serve as the Faculty Advisor for the Student on this project. The Faculty Sponsor / Advisor may designate an alternate Faculty Sponsor / Advisor who will assume responsibilities on a temporary basis, and will notify the OPHS-IRB of any change in the Faculty Sponsor / Advisor for this project.

Student Investigator's Assurance: By my signature as student investigator, I certify the above applicable assurances and that I will meet with my Faculty Sponsor / Advisor on a regular basis to monitor study progress. If my Faculty Sponsor / Advisor is unavailable, I will meet with his/her designated alternate Faculty Sponsor / Advisor who will assume his/her responsibilities. I also agree to notify the OPHS-IRB of any change in Faculty Sponsor / Advisor

_____

STUDENT INVESTIGATOR Signature Print Name Date

Categories of Research that are EXEMPT from Full Board Review ….but must still be evaluated by the OPHS-IRB

(1) Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:

(i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; **and**

(ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

(3) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior that is not exempt under paragraph (b)(2) of this section, if:

(i) the human subjects are elected or appointed public officials or candidates for public office;

or

(ii) federal statute(s) require(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.

(4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

(5) Research and demonstration projects which are conducted by or subject to the approval of department or agency heads, and which are designed to study, evaluate, or otherwise examine:

(i) Public benefit or service programs;

(ii) procedures for obtaining benefits or services under those programs;

(iii) possible changes in or alternatives to those programs or procedures; **or**

(iv) possible changes in methods or levels of payment for benefits or services under those programs.

(6) Taste and food quality evaluation and consumer acceptance studies,

(i) if wholesome foods without additives are consumed **or**

(ii) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture.

Note: This is an "Information Only" page… Please Do NOT submit this page with the *Request for Review of EXEMPT Category Research Project*

APPENDIX H

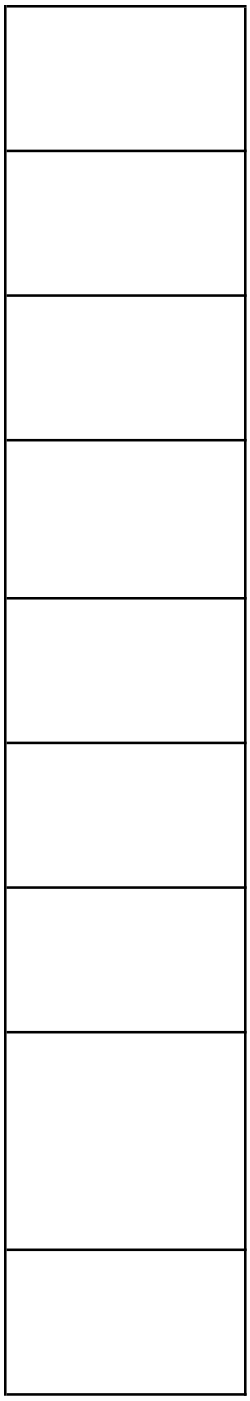
SYLLABUS-MAPPING TOOL # 1 DATA

Calender Year : Spring 2015		Components of Re		
		Researcher Evaluation		
Class : 7100		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
Class Title	Class Instructor			
Review of Syllabus	Yarabinec			
Introduction to Aging and the Geriatric Patient	Yarabinec			
Assessment of and General Care for Geriatric Patients and Compared to Younger Adults	Loewen			
Fall Prevention and Musculoskeletal Issues	Johnson			
Assessment and Treatment of Psychosocial and Economic Issues	Stafford			

Physical and Ethical End-of-Life Care	Stafford			
Group Presentations	Yarabinec			
Group Presentations	Yarabinec			
Communication with Geriatric Patients, Caregivers, and Family Members	Yarabinec			
Interdisciplinary Care for Older Adults	Yarabinec			
Biomedical Principles of Aging and Age-Related changes in PK/PD	Yarabinec			
Polypharmacy and Other Forms of Suboptimal Drug Use in Older Patients	Yarabinec			
General Pharmacotherapy Issues to Consider in Older Adults: ADE and Endocrine, Cardiovascular, and Psychiatric Disorders	Yarabinec			
Mock Patient Interviews	TBD			

esearch Design According to ACPE 2016 Standards				
	Pharmacy Student Evalution			
Evaluate the reliability of the conclusions of published research studies	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**

Agreement



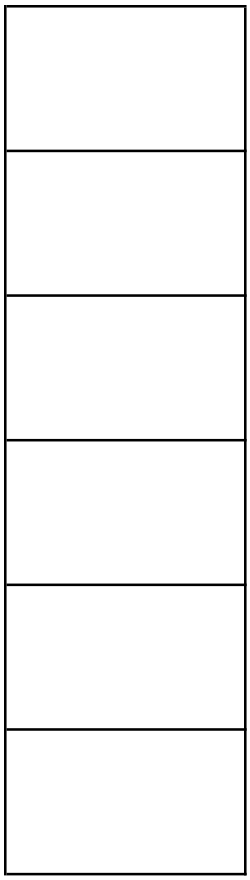
Calender Year : Fall 2013		Components of Re		
		Researcher Evaluation		
Class : 7116		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
Class Title	Class Instructor			
Introduction and Orientation to Course + Team assignments + Introduction to Osteopathic Medicine	Baldwin			
Professional Behaviors/Codes	Martin			
Immunizations	Bullock			
Physical Activity	Bullock			
Smoking Cessation	Bullock			

Injury Prevention/Safety Factors	Baldwin			
Hyperlipidemia	Baldwin	x	x	x
Cancer Screening	Baldwin			
Alcohol Abuse/Assistance	Bullock			
Diet and Nutrition	Bullock			
Cultural Competencies	Martin			

esearch Design According to ACPE 2016 Standards				
	Pharmacy Student Evalution			
Evaluate the reliability of the conclusions of published research studies	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**

x				

Agreement



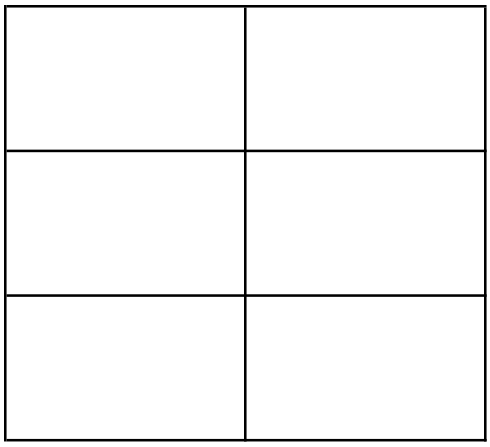
Calender Year : Spring 2014		Co Researcher	
Class : 7120		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**
Class Title	Class Instructor		
Medicare/Medicaid Fraud & Waste Training	Worrall		
Immunization Training	Bullock		
Immunization OSCE & Exam	Bullock		
SAGE Session III: Medication/Pharmacology	Worrall		
SAGE Session IV: Medical History & Aging Physiology	Worrall		

SAGE Discussion Session	Faculty Mentors		
Direct Patient Care Service Learning	Worrall		
Pharmacist Shadowing	Worrall		

omponents of Research Design According to ACPE 2016 Standards

Evaluation		Pharmacy Student Evalution		
Evaluate the validity of the conclusions of published research studies	**Evaluate the reliability of the conclusions of published research studies**	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**

Evaluate the reliability of the conclusions of published research studies	**Agreement**

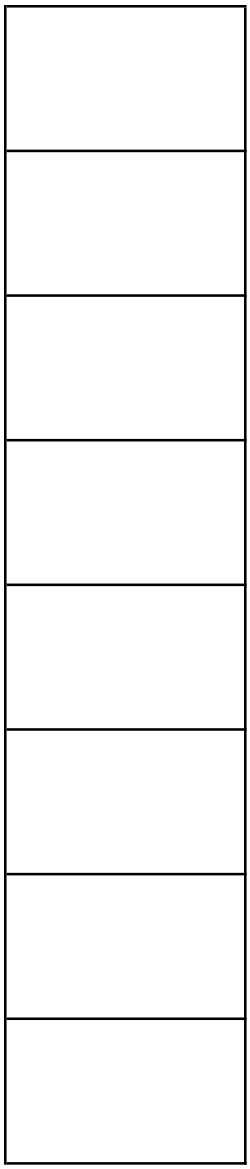


Calender Year : Spring 2014		Components of Re		
		Researcher Evaluation		
Class : 7126		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
Class Title	Class Instructor			
Introduction and Orientation to Course + Team assignments	Toale			
Sleep Health	tbd			
Vitamins, Nutrients, and Herbal Supplements	tbd			x
Pediatrics	tbd			
Obesity and Bariatric Surgery	Toale			

Cough and Cold	tbd			
Poison Prevention	tbd			
Stomach and GI	tbd			
Telemedicine and Telepharmacy	tbd			
Motivational Interviewing	Toale			
Complementary and Alternative Medicines	tbd			
Medical Marijuana	Toale			
Prevention of Pregnancy and STI's	Toale			

esearch Design According to ACPE 2016 Standards				
	Pharmacy Student Evalution			
Evaluate the reliability of the conclusions of published research studies	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**
x				

Agreement

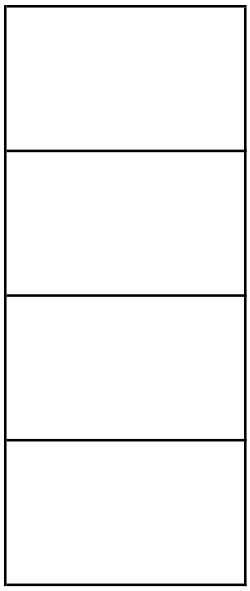


Calender Year : Fall 2015		Components of Re		
		Researcher Evaluation		
Class : 7150		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
Class Title	Class Instructor			
IPPE Institutional Debrief / Course Introduction / MR Review / Various Certificate Trainings	Worrall/Elrod			
MR OSCE (all day)	Worrall			
MR Experience Part 1	Off-campus Preceptor			
MR Experience Part 2	Off-campus Preceptor			
MR Experience Part 3	Off-campus Preceptor			
MR Experience Part 4	Off-campus Preceptor			

ACLS Training	Red River			
Code Simulation Experience	Off-campus Preceptor			
MR Experience Debrief	Worrall			
Direct Patient Care Service Learning	Worrall			

esearch Design According to ACPE 2016 Standards				
	Pharmacy Student Evalution			
Evaluate the reliability of the conclusions of published research studies	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**

Agreement

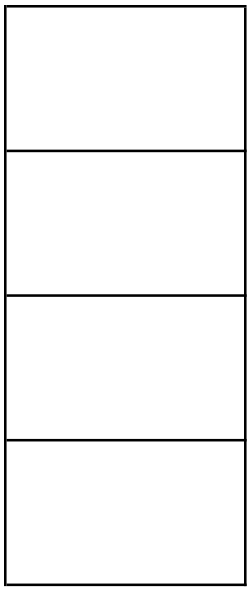


Calender Year : Spring 2016		Components of Re		
		Researcher Evaluation		
Class : 7150		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
Class Title	Class Instructor			
IPPE Institutional Debrief / Course Introduction / MR Review / Various Certificate Trainings	Worrall/Elrod			
MR OSCE (all day)	Worrall			
MR Experience Part 1	Off-campus Preceptor			
MR Experience Part 2	Off-campus Preceptor			
MR Experience Part 3	Off-campus Preceptor			
MR Experience Part 4	Off-campus Preceptor			

ACLS Training	Red River			
Code Simulation Experience	Off-campus Preceptor			
MR Experience Debrief	Worrall			
Direct Patient Care Service Learning	Worrall			

esearch Design According to ACPE 2016 Standards				
	4th Pharmacy Evalution			
Evaluate the reliability of the conclusions of published research studies	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**

Agreement



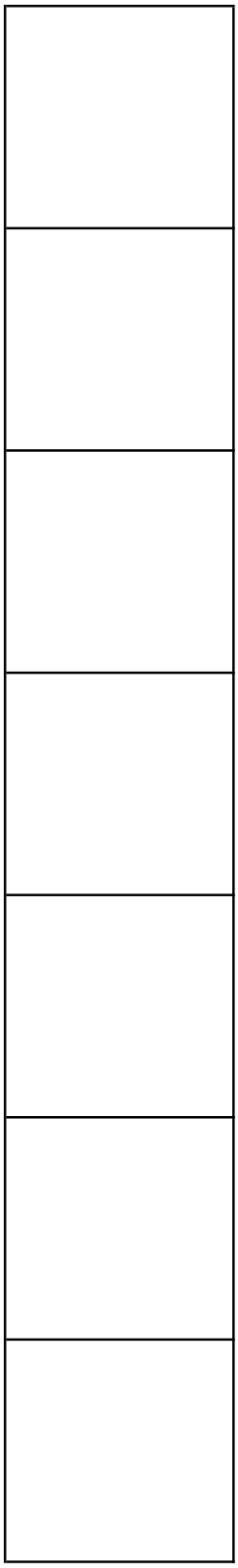
Calender Year : Fall 2015		Components of Re		
		Researcher Evaluation		
Class : 7156		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
Class Title	Class Instructor			
Course intro & SBAR & Team STEPPS approach to presenting clinical cases using SSTI & Bone/Joint infection cases	Gaviola & Clay			
Tuberculosis, pneumonia & URIs	Clay & Tatachar			
Intra-abdominal infections, endocarditis & meningitis	Clay & Gibson			
Gastrointestinal infections, STDs	Clay			

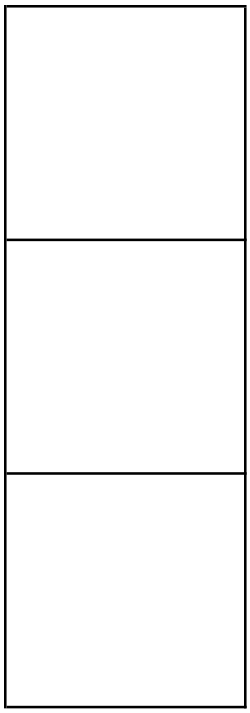
Hepatitis C & HIV (Tx & Primary Care)	Elrod & Clay			
HIV (Primary Care (cont'd) & OI)	Elrod & Clay			
Asthma/COPD	Red River			
Asthma/COPD, GERD, PUD	TBD			
MR Experience Debrief	TBD			
IBD, IBS, Diarrhea/Constipation, GERD, PUD	TBD			
Hepatic Disease	Gibson			

Seizure	Jann			
Schizophrenia	TBD			
Major Depressive Disorder	Cohen			

esearch Design According to ACPE 2016 Standards				
	Pharmacy Student Evalution			
Evaluate the reliability of the conclusions of published research studies	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**

Agreement





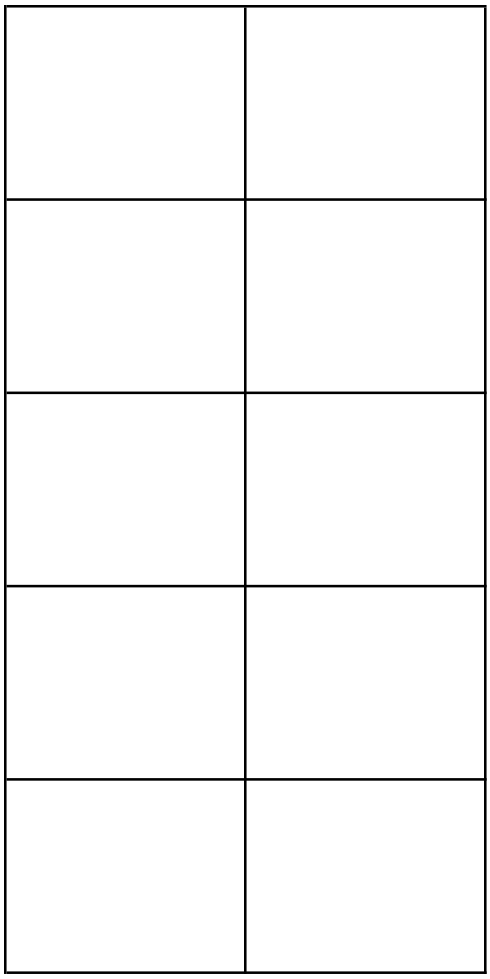
Calender Year : Fall 2015		Co Researcher	
Class : 7160		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**
Class Title	Class Instructor		
IPPE Institutional Debrief / Course Introduction / MR Review / Various Certificate Trainings	Worrall/Elrod		
MR OSCE (all day)	Worrall		
MR Experience Part 1	Off-campus Preceptor		
MR Experience Part 2	Off-campus Preceptor		
MR Experience Part 3	Off-campus Preceptor		

MR Experience Part 4	Off-campus Preceptor		
ACLS Training	Red River		
Code Simulation Experience	Off-campus Preceptor		
MR Experience Debrief	Worrall		
Direct Patient Care Service Learning	Worrall		

ɔmponents of Research Design According to ACPE 2016 Standards

Evaluation		Pharmacy Student Evalution		
Evaluate the validity of the conclusions of published research studies	**Evaluate the reliability of the conclusions of published research studies**	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**

Evaluate the reliability of the conclusions of published research studies	**Agreement**

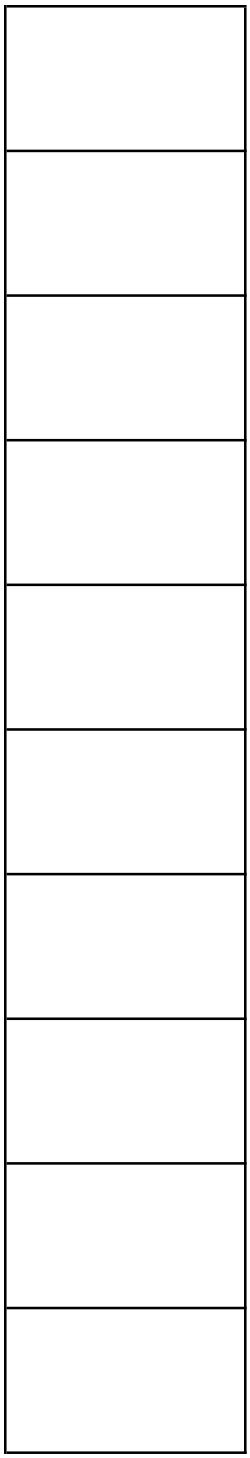


Calender Year : Spring 2016		Components of Re		
		Researcher Evaluation		
Class : 7166		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
Class Title	Class Instructor			
Anemias	Gaviola, Jann			
Pharmacology and medicinal chemistry of oncologic agents	Gaviola, Emmitte			
Lung, colon cancer	Gaviola, Jann, Slade, Grimsley			
Breast cancer, lymphoma	Gaviola, Jann, Slade			
Multiple myeloma	Gaviola, Jann, Slade			

Supportive care	Gaviola, Jann, Nguyen			
Rheumatoid arthritis	Gaviola, Elrod, Howard			
Osteoporosis	Gaviola, Howard			
Health disparities	Gaviola, Gibson			
Women’s health, pregnancy and lactation	Gaviola, Gibson			
Pediatrics	Gaviola, Gibson			
Geriatrics	Gaviola, Gibson			
SUP, VTE px, ABGs, respiratory failure	Gaviola			
Pain, agitation, delirium, RSI	Gaviola			
Shock, cardiac arrest	Gaviola			

esearch Design According to ACPE 2016 Standards				
	4th Pharmacy Evalution			
Evaluate the reliability of the conclusions of published research studies	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**

Agreement



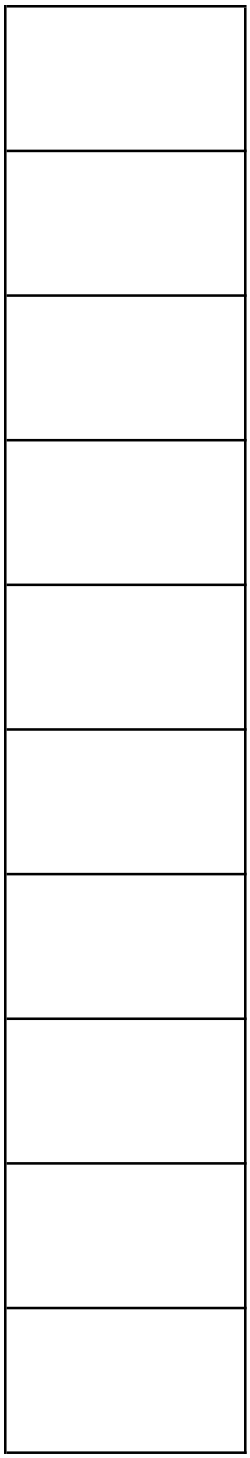
Calender Year : Fall 2014		Components of Re		
		Researcher Evaluation		
Class : 7200		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
Class Title	Class Instructor			
Course Introduction and Activities	Bullock			
Overview of Patient Care Services	Bullock			
Overview of Patient Care Services	Bullock			
Transtheoretical Model of Behavior Change	Bullock			x
Legal and Regulatory Implications	Jennifer Fix			
Chronic Disease Management	Dennis Song			
Immunizations	Penny / Sullivan-Green			

Medication Therapy Management	Ashley Buzard	x	x	x
Presentations	Bullock			
Point-of-care Testing	Sheritta Horne			x
Operations & Workflow	Bullock			
Revenue and Billing	Aemad Aslam			
Specialty Pharmacy	Bullock			
Adherence/Compliance	Bullock			
Health and Wellness Screenings	Lisa Rivera			
Marketing & Promotion	Bullock			
Shark Tank Presentations	TBD			

esearch Design According to ACPE 2016 Standards				
	Pharmacy Student Evalution			
Evaluate the reliability of the conclusions of published research studies	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**
x				

x				

Agreement



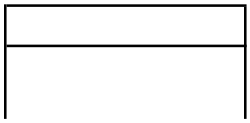
Calender Year : Fall 2014		Components of Re		
		Researcher Evaluation		
Class : 7202		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
Class Title	Class Instructor			

esearch Design According to ACPE 2016 Standards				
	4th Pharmacy Evalution			
Evaluate the reliability of the conclusions of published research studies	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**

	Domain 1 : Foundation Knowledge		Domain 2 : Essentials For Practice an	
	1.1 : Learner		2.1 : Caregiver	
Agreement	Identify and critically analyze emerging theories, information, and technologies that may impact patient-centered and population-based care.	Critically analyze biomedical science literature to optimize patient care.	Monitor the patient and adjust care plans as needed by identifying appropriate objective and subjective outcomes that provide evidence related to the success/failure of the plan.	Design, implement, monitor, evaluate, and adjust patient-specific, evidenced-based care plans that address health literacy, cultural diversity, and behavioral psychosocial issues

Domains of Pharmacy Education			
d Care	Domain 3 : Approach to Practice and Care		
2.4 : Population Based Care Provider	3.1 : Problem Solver		
Develop and implement population-specific, evidence-based disease management programs and protocols based upon analysis of epidemiologic and pharmacoeconomic data, medication-use criteria, medication use review, and risk- reduction strategies	Describe anticipated positive and negative outcomes by reviewing assumptions, inconsistencies, and unintended consequences.	Implement the most viable solution to include monitoring parameters to measure intended and unintended consequences.	Reflect on the solution implemented and its effectiveness.

		Domain 4 : Personal and Professional Development	
3.2 : Educator		4.1 : Self Evaluator	
Evaluate, select, and implement the most effective and efficient pharmacist-delivered education for the intended audience.	Assess a patient's health literacy and modify communication strategies to meet the patient's needs.	Recognize, report, correct, and learn from errors.	



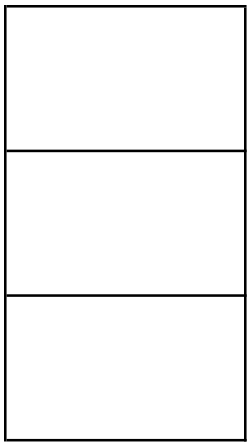
Calender Year : Fall 2014		Components of Re		
		Researcher Evaluation		
Class : 7203		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
Class Title	Class Instructor			
Introduction to research & presentation; Topics on pharmaceutical sciences	Cheng & Clay			
Topics on pharmacotherapy; Qs & As	Cheng & Clay	x	x	x
Consultation on project selection and research proposal writing	Cheng & Clay	x	x	x
Consultation on project selection and research proposal writing	Cheng & Clay	x	x	x
Proposals must be uploaded to CANVAS	Cheng & Clay	x	x	x

Literature- or lab-based research	Faculty mentor	x	x	x
Student presentations	Cheng & Clay			
Student presentations	Cheng & Clay			

esearch Design According to ACPE 2016 Standards				
	4th Pharmacy Evalution			
Evaluate the reliability of the conclusions of published research studies	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**
x				
x				
x				
x				

x				

Agreement



Calender Year : Fall 2013		Cc Researcher	
Class : 7214		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**
Class Title	Class Instructor		
Course Introduction and the Pharmacist's Role in Self-Care	Jann		
Patient Assessment in Self-Care	Jann		
Concepts of Traditional Non-Prescription + Products versus Complementary and Alternative Products	Machu		
Headache and Fever	Machu		
Musculoskeletal Injuries and Disorders	Machu		

Colds and Allergies	Machu		
Cough	**Jann**		
Asthma	Machu		
Atopic and Contact Dermatitis, Dry Skin	Jann		
Scaly Dermatosis	Jann		
Insect Bites and Stings and Pediculosis	Jann		
Acne	Jann		
Minor Wounds, Sunburn, and Wounds	Jann		
Miscellaneous Dermatological Topics: Warts and Hair Loss	Jann		
Fungal Skin Infections	Jann		
Prevention of Sun-Induced Skin Disorders: Skin Hyperpigmentation and Photoaging	Jann		

Otic Disorders	Cohen		
Oral Disorders, Pain, and Discomfort	Cohen		
Vaginal and Vulvovaginal Disorders	Toale		
Disorders Related to Menstruation	Toale		
Prevention of Pregnancy and Sexually Transmitted Diseases	Toale		
Pregnancy Testing, Ovulation and Fertility Testing	Toale		
Home Monitoring of Disease	Jann		
Home Screening for Diagnosis of Disease and Detection of Drug Use	Jann		

omponents of Research Design According to ACPE 2016 Standards

Evaluation		Pharmacy Student Evalution		
Evaluate the validity of the conclusions of published research studies	**Evaluate the reliability of the conclusions of published research studies**	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**

Evaluate the reliability of the conclusions of published research studies	**Agreement**

Calender Year : Fall 2013		Co Researcher	
Class : 7217		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**
Class Title	Class Instructor		
Introduction; Medical/Pharmacy + Terminology & Abbreviations; Sigler Prescription Drug Cards	Elrod		
Medication History, Patient Interview; + Examination Techniques	Elrod		
Introduction to Labs	Bullock		
Physical Assessment: Abdomen, Musculoskeletal, Head and Neck	Elrod		
Physical Assessment: Vitals Signs	Elrod		

Physical Assessment: Cardiovascular + Exam, Cholesterol POC	Elrod		
Physical Assessment: Respiratory, Peak Flow Meter	Elrod		
Physical Assessment: Eyes and Ears	Elrod		
OSCE Review Session/Preparation	Elrod		
Calculations: Units & Measurement + Review; Density & Specific Gravity; Doses & Units	Prokai		
Calculations: Concentration, Ratio & Percentage; Aliquots; Milliequivalents, millimoles & milliosmoles	Prokai		
Calculations: Reducing & Enlarging + Formulas; Calculations in Compounding; Active Drug Moiety	Prokai		
Calculations: Isotonic & Buffer Solutions; Dilution, Concentration & Alligation	Prokai		
Drug Information Resources: Tertiary, Secondary and Citing References	Worrall		
Calculations Review	Prokai		

omponents of Research Design According to ACPE 2016 Standards

Evaluation		Pharmacy Student Evalution		
Evaluate the validity of the conclusions of published research studies	**Evaluate the reliability of the conclusions of published research studies**	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**

Evaluate the reliability of the conclusions of published research studies	**Agreement**

Calender Year : Spring 2014		Co Researcher	
Class : 7224		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**
Class Title	Class Instructor		
Course Introduction and Legal and Regulatory Aspects of Self-Care	Jann		
Insomnia, Drowsiness, and Fatigue	Cohen		
Smoking Cessation	Cohen		
Essential and Conditionally + Essential Nutrients	Jann		
Functional and Meal Replacement Foods	Jann		

Sports Nutrition and Performance-Enhancing Nutrients	Jann		
Infant and Child Nutrition	Jann		
Overweight and Obesity	Jann		
Heartburn and Dyspepsia	Machu		
Intestinal Gas	Machu		
Constipation	Machu		
Diarrhea	Machu		
Anorectal Disorders	Machu		
Pinworm Infections	Machu		
Nausea and Vomiting	Machu		
Ostomy Care and Supplies	Machu		

Durable Medical Equipment and Adult Incontinence and Supplies	Jann		
Minor Foot Disorder	Jann		
Ophthalmic Disorders	Toale		
Prevent of Contact Lens-Related Disorders	Toale		
Natural Products	Jann		
Self-Care Components of Selected Chronic Disorders	Jann		
Common Complementary and Alternative Medicine Health Systems	Jann		

omponents of Research Design According to ACPE 2016 Standards

Evaluation		Pharmacy Student Evalution		
Evaluate the validity of the conclusions of published research studies	**Evaluate the reliability of the conclusions of published research studies**	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**

x	x			

Evaluate the reliability of the conclusions of published research studies	**Agreement**

Calender Year : Spring 2014		Components of Re		
		Researcher Evaluation		
Class : 7227		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
Class Title	Class Instructor			
Terminology and Abbreviations Introduction	Worrall			
QS1 Pharmacy Management System Training	Bullock			
Introduction to Laboratory Stations and Equipment	Di Pasqua			
QS1 Pharmacy Management System Practice	Bullock			
Techniques of Compounding: Powders and Capsules	Di Pasqua			

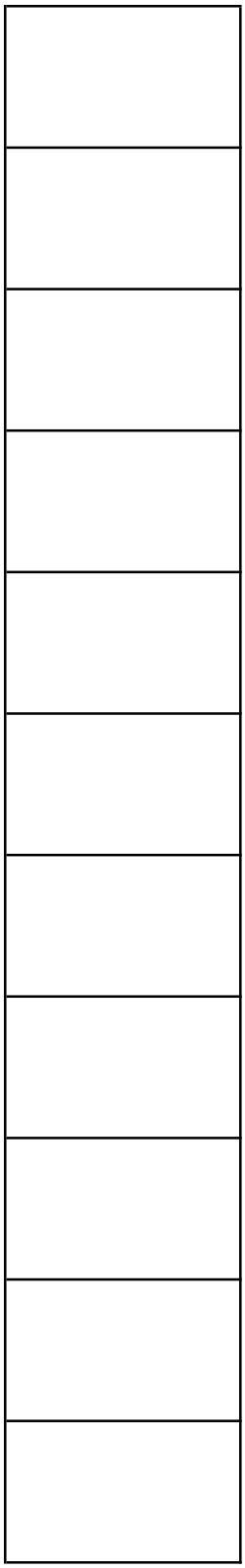
Hand-punched powder filled capsules	Di Pasqua			
Techniques of Compounding: Gels	Di Pasqua			
Gels	Di Pasqua			
Techniques of Compounding: Liquids	Dong			
Oral suspension	Dong			
Techniques of Compounding: Ointments	Dong			
Topical ointment	Dong			
Techniques of Compounding: Suppositories	Dong			
Rectal suppositories	Dong			
Techniques of Compounding: Lollipops	Dong			
Sorbitol base lollipops	Dong			

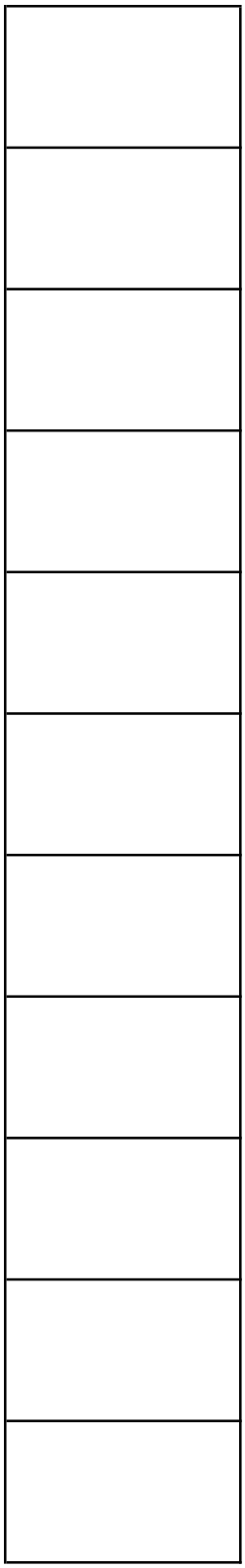
Medication Counseling	Bullock			
Compounding OSCE	Di Pasqua & Dong			
Medication Counseling	Bullock			
Patient Counseling Mock OSCE	Bullock			
Medication Dispensing	Bullock			
Written Prescription Analysis Activity	Bullock			
Telephone/VM Rx	Worrall			
Telephone/VM Rx Practical	Worrall			
Patient Medication Profiles	Bullock			
Medication Profile Activity	Bullock			
Written Communication with Healthcare Providers	Bullock			

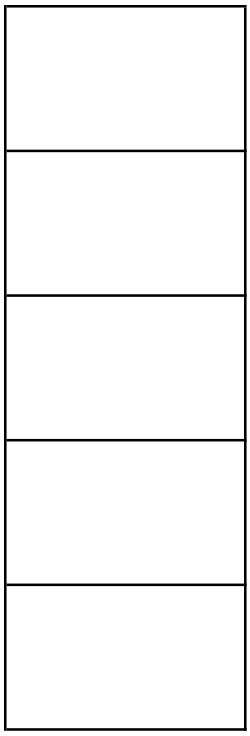
Patient Chart Note	Bullock			
Drug Devices	Bullock			
Drug Device Demonstration	Bullock			
Patient Education	Bullock			
Patient Education OSCE	Bullock			

esearch Design According to ACPE 2016 Standards				
	Pharmacy Student Evalution			
Evaluate the reliability of the conclusions of published research studies	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**

Agreement







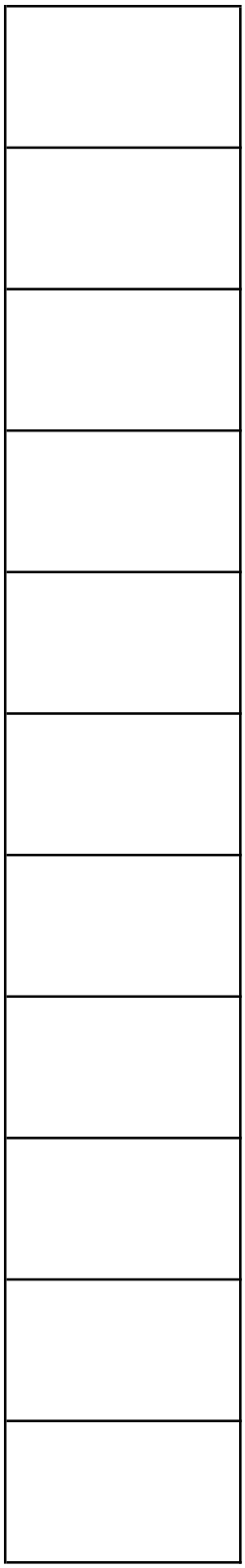
Calender Year : Fall 2014		Components of Re		
		Researcher Evaluation		
Class : 7232		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
Class Title	Class Instructor			
Introduction to Medicinal Chemistry, Drugs & their Action, & their Action	Prokai			
Modern Drug Design, Lead optimization, Combinatorial chemistry	Prokai			
Chemistry Recapture	Prokai			
Overview of Functional Groups in Organic Chemistry	Prokai			
Pharmacophores, Functional Groups in Drugs and their Roles	Prokai			

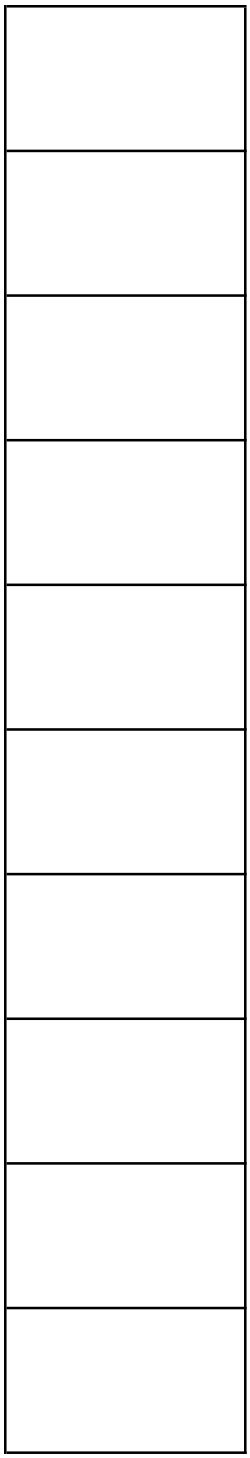
Identifying Acidic and Basic Functional Groups in Drugs	Prokai			
Stereochemistry and Drug Action	Prokai			
Drug Structure and Solubility I	Prokai			
Drug Structure and Solubility II	Prokai			
Structure Activity Relationships (SAR) Studies	Prokai			
Quantitative Structure-Activity Relationship (QSAR) Studies	Prokai			
Drug Binding Interactions	Prokai			
Factors Influencing Drug Metabolism	Prokai			
Receptors as Drug Targets	Machu			
Drug Affinity	Machu			
Analysis of Drug-Receptor Interactions	Machu			

Drug Potency and Efficacy 1	Machu			
Drug Potency and Efficacy 2	Machu			
Drug Antagonism	Machu			
i-Clicker Interaction Session	Machu			
Miscellaneous Topics in Pharmacodynamics	Machu			
i-Clicker Interactive Session: Review of Autonomic Nervous System	Machu			
Parasympathetic Nervous System Drugs	Machu			
Parasympathetic Nervous System Drugs	Machu			
Sympathetic Nervous System Drugs	Machu			
Sympathetic Nervous System Drugs	Machu			

esearch Design According to ACPE 2016 Standards				
	Pharmacy Student Evalution			
Evaluate the reliability of the conclusions of published research studies	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**

Agreement

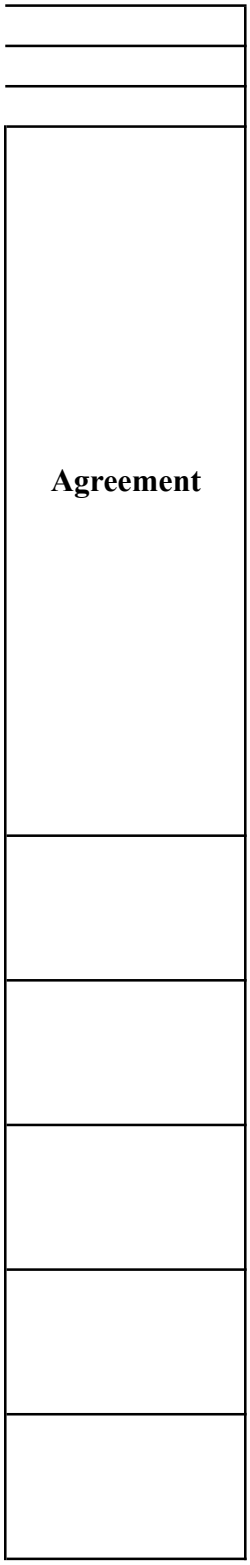




Calender Year : Spring 2016		Components of Re		
		Researcher Evaluation		
Class : 7249		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
Class Title	Class Instructor			
Orientation / Computer/Systems Access	Preceptor			
Centralized Dispensing Area / Automated Dispensing Systems	Preceptor			
Purchasing/Receiving / Unit Dose Repackaging	Preceptor			
Sterile Compounding	Preceptor			
Medication Order Review &Processing / Decentralized Clinical Activities	Preceptor			

Leadership/Management	Preceptor			

esearch Design According to ACPE 2016 Standards				
	4th Pharmacy Evalution			
Evaluate the reliability of the conclusions of published research studies	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**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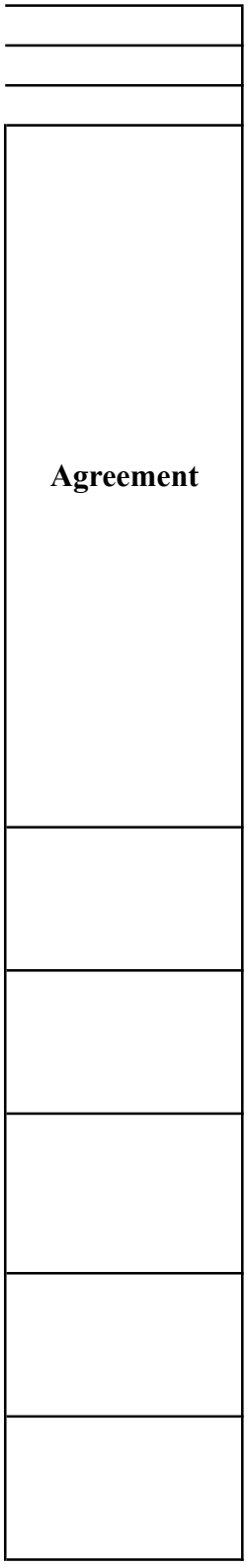
Calender Year : Spring 2016		Components of Re		
		Researcher Evaluation		
Class : 7232		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
Class Title	Class Instructor			
Course Introduction / Rheumatoid Arthritis and Gout Pathophysiology	Howard / Elrod			
Med Chem: Rheumatoid arthritis, gout, and anti-inflammatory agents (NSAIDs)	Liu			
Med Chem/Pharmacology: Rheumatoid arthritis, gout, and anti-inflammatory agents (NSAIDs)	Liu			
Pharmacology: Rheumatoid arthritis, gout, and anti-inflammatory agents (NSAIDs)	Liu			
Rheumatoid arthritis Pharmacotherapy	Elrod			

Gout and Hyperuricemia Pharmacotherapy	Elrod			
Osteoporosis Pathophysiology	Howard			
Med Chem: Osteoporosis agents	Liu			
Pharmacology: Osteoporosis agents	Liu			
Osteoporosis Pharmacotherapy	Howard/Davidson/Heinrich			
Osteoporosis Pharmacotherapy/Case Studies	Howard/Davidson/Heinrich			
Systemic Lupus Erythematosus	Jann			
Drug-Induced Systemic Lupus Erythematosus	Jann			
Osteoarthritis Pathophysiology	Howard			
Osteoarthritis Pharmacotherapy	Howard			
Orthopedic Surgery Considerations	Howard			

Pain: Acute/Inpatient/Pain Management	Howard			
Pain: Palliative/Hospice Care	Mathe'			
Pain: Inpatient/Hospital/Palliative Care and OMM Clinical Cases	Howard			
Pain: Fibromyalgia	Jann			
Inherited connective tissue disorders	Gaviola			
Drug-induced myopathies and Rhabdomyolysis	Gaviola			
Myasthenia Gravis, Guillain-Barré Syndrome	Jann			
Scleroderma	Howard			

esearch Design According to ACPE 2016 Standards				
	4th Pharmacy Evalution			
Evaluate the reliability of the conclusions of published research studies	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**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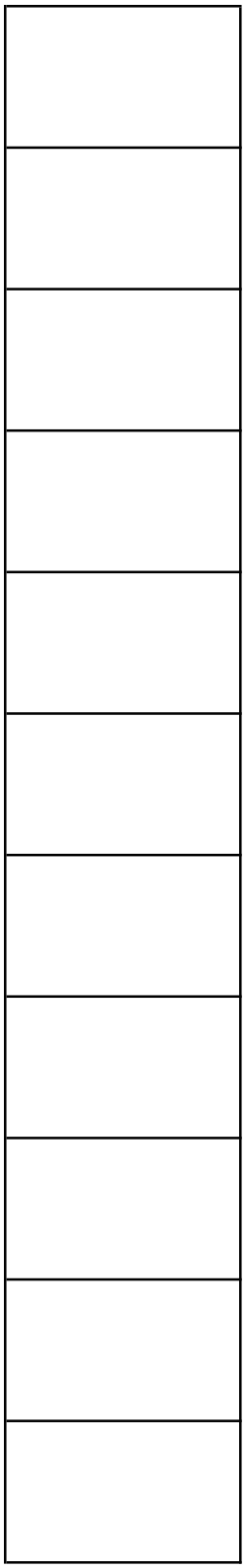

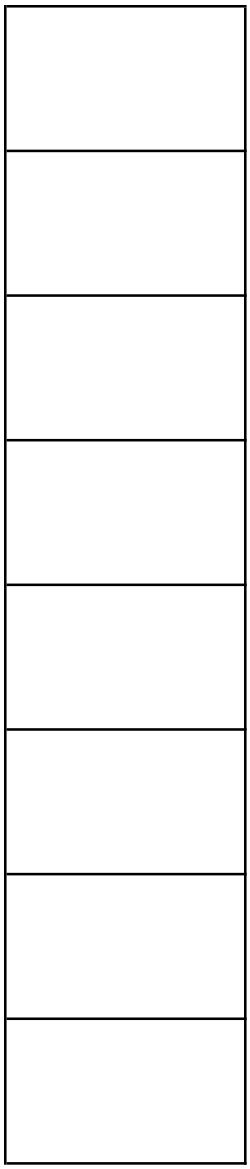

Calender Year : Spring 2016		Co Researcher	
Class : 7263		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**
Class Title	Class Instructor		
Introduction & Health disparities	Gibson/ Bullock		
Health disparities	Bullock		
Health literacy	Bullock		
Cultural & linguistic competency	Bullock/ Tatachar/ Gibson		
Resources for low-income patients	Gibson		
Considerations for the mental health patient	Tatachar		

Cultural competency panel	Guests		
Considerations for the LGBT patient	Gibson		
Considerations for the LGBT patient	Gibson		
Women's health, pregnancy & lactation (1.5h)	Deen		
Bariatric surgery (30 min)	Gibson		
Orphan drugs	Jacob		
Interprofessional collaboration	Gibson		
New medications	Gibson		
New medications	Gibson		
Student presentations	Gibson		
Student presentations	Gibson		

Student presentations	Gibson		
Pediatric-specific calculations & monitoring	Gervase		
Pediatric PK/PD	Ball/ Chapman		
Otitis media, UTIs, meningitis, vaccines	Smailagic		
Pediatric pulmonology: cystic fibrosis, etc	Wendel		
Pediatric cardiology	Rodriguez		
Pediatric neurology	Wong		
NICU/pediatric nutrition	Deen/ Armstrong		
Intro to geriatrics & geriatric syndromes	Elrod		
Geriatric prescribing criteria	Elrod		
Geriatric-focused management of HTN, HLD, and DM	Elrod		

Geriatric-focused management of CKD and psychiatric disorders	Elrod		
Geriatric urologic and GI disorders	Elrod		
Geriatric nutrition	Elrod		
Non-pharmacologic geriatric care	Elrod		
Geriatric cases & Review	Gibson/ Elrod		
Geriatric cases & Review	Gibson/ Elrod		
Veterinary pharmacy	Fogelberg		
Veterinary pharmacy	Fogelberg		

ɔmponents of Research Design According to ACPE 2016 Standards

Evaluation		4th Pharmacy Evalution		
Evaluate the validity of the conclusions of published research studies	**Evaluate the reliability of the conclusions of published research studies**	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**

Evaluate the reliability of the conclusions of published research studies	**Agreement**

Calender Year : Spring 2016		Components of Re		
		Researcher Evaluation		
Class : 7264		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
Class Title	Class Instructor			
Course Introduction / Review fluids/electrolytes/acid-base/ABGs	Gaviola			
Supportive care – glycemic control, bowel regimens, anemias	Gaviola			
Stress ulcer prophylaxis	Chen			
VTE prophylaxis	Howard			
Hemodynamics/mechanical ventilation	Winings			
Respiratory failure – ARDS, ALI	Winings			

Global Health Issues, Diversity, and Cultural Competence	Winings			
Vasoactive agents	Kramer			
Shock – Cardiogenic	Kramer			
Shock – Distributive with a focus on sepsis	Kramer			
Shock – Distributive with a focus on sepsis	Kramer			
Pain, agitation and delirium – Part I	Current			
Pain, agitation and delirium – Part 2	Current			
Paralytics, rapid sequence intubation	Current			
Pharmacology and medicinal chemistry of sedatives, paralytics	Pang			
Shock – Hypovolemic	Gaviola			
Blood products and trauma	Gaviola			

Review/Cases	Gaviola			
Neurotrauma, TBI, SCI	Taburyanskaya			
Intracranial hemorrhage	Winings			
Osmotic disorders	Gaviola			
Arrhythmias, ACLS, therapeutic hypothermia – part 1	Kramer			
Arrhythmias, ACLS, therapeutic hypothermia – part 2	Kramer			
Pulmonary Hypertension	Kramer			
Common infections in the ICU	Kramer			
Nutrition in the ICU	Taburyanskaya			
GI bleeding	Gaviola/Biglione			
Burns	Gaviola			

esearch Design According to ACPE 2016 Standards				
	4th Pharmacy Evalution			
Evaluate the reliability of the conclusions of published research studies	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**

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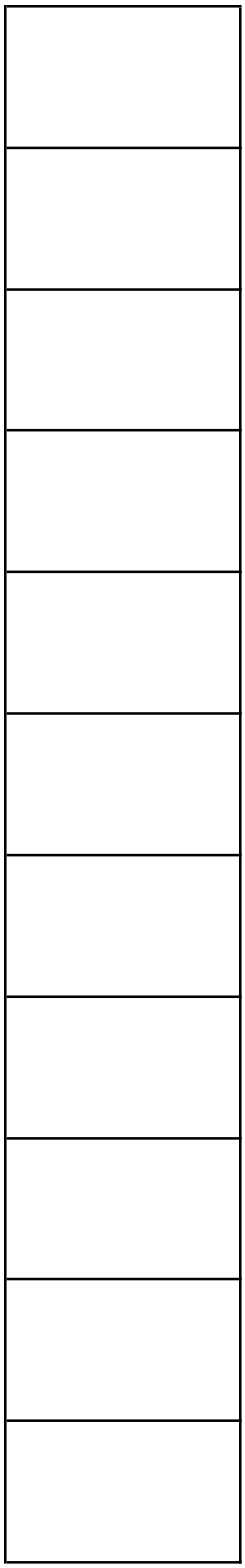
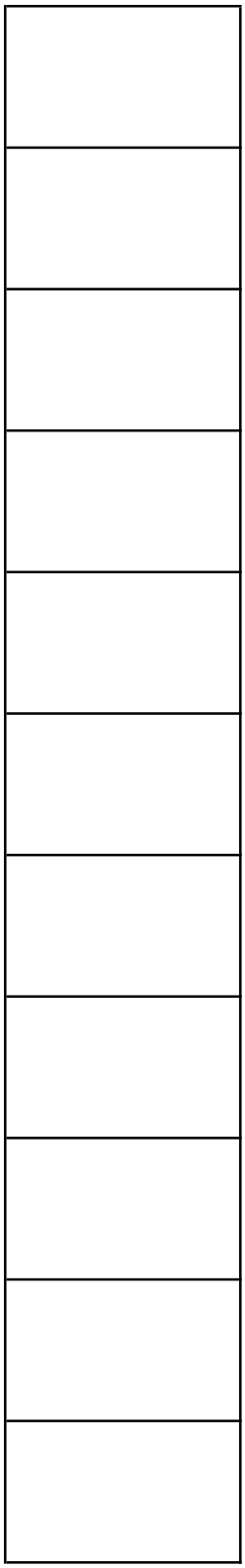




Calender Year : Fall 2013		Cc Researcher	
Class : 7313		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**
Class Title	Class Instructor		
Introduction: Welcome and overview of dosage forms.	Prokai		
Review : Math and chemistry recapture	Prokai &Di Pasqua		
Oral conventional solid dosage forms I: Powders & granules	Dong		
Oral conventional solid dosage forms II: Tablets	Dong		
Oral conventional solid dosage forms III: Capsules	Di Pasqua		

Oral controlled/extended release solid dosage forms	Dong		
Drug absorption and oral route	Dong		
Drug stability	Prokai		
Semisolid dosage forms	Di Pasqua		
Rheology	Di Pasqua		
Physicochemical properties of drugs	Prokai		
Factors influencing solubility	Di Pasqua		
Oral liquid dosage forms I : Suspension, emulsions and other disperse systems	Dong + Prokai		
Oral liquid dosage forms II: Biopharmaceutics of solutions	Prokai		
Aerosols	Di Pasqua		

omponents of Research Design According to ACPE 2016 Standards

Evaluation		Pharmacy Student Evalution		
Evaluate the validity of the conclusions of published research studies	**Evaluate the reliability of the conclusions of published research studies**	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**

Evaluate the reliability of the conclusions of published research studies	**Agreement**

Calender Year : Fall 2013		Components of Re		
		Researcher Evaluation		
Class : 7315		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
Class Title	Class Instructor			
Course Orientation: Medical Terminology and Pharmacy Abbreviations	Cohen			
Healthcare Delivery in America: Historical and Policy Perspectives	Jann			
Healthcare Professionals and Interdisciplinary Care	Cohen			
The Pharmacist and thePharmacy Profession	Cohen			
CV Workshop Student Active Learning	Cohen			

Career Planning Class Discussion – Career Pathway	Jann			
Interviewing Skills	Cohen			
Interviewing Skills – Active Learning	Cohen			
Community Pharmacy Practice Pharmacy Career Pathways	Cohen			
Ambulatory Care Pharmacy Practice Pharmacy Career Pathways	Bullock			
Hospital Pharmacy Practice Pharmacy Career Pathway	Cohen			
Hospital Pharmacy (cont.). + Pharmacy Career Pathway	Cohen			
LTC and Mental Health Pharmacy Practice + Pharmacy Career Pathways	Cohen			
Ethics in Pharmacy Practice	Martin			
Pharmacy as a Career: Interactive Panel + Active Learning + Four practitioners and industry	Cohen			
Professionalism in Pharmacy Practice	Jann			

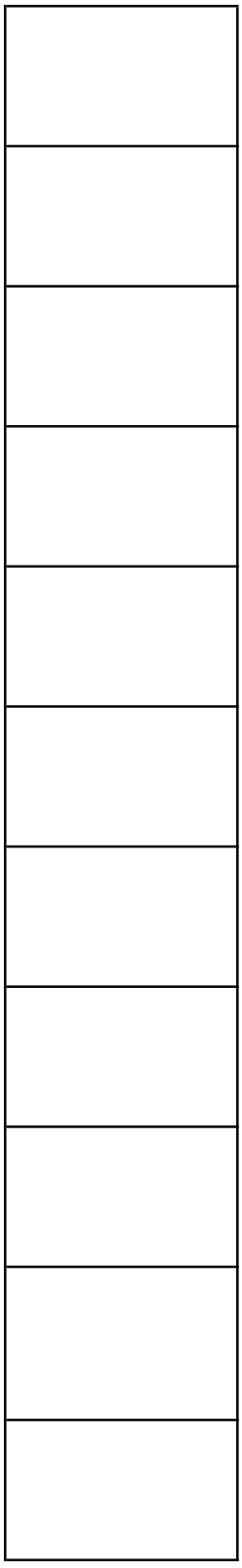
Pharmacy Intern: Legal Issues and Responsibilities	Bullock			
Introduction to Public Health and Epidemiology	Worrall			
Government Involvement in Health Care	Worrall			
Health in Tarrant County	Jann			
ACOs and PCMH	Jann			
Managed Health Care	Clay			
Medicare	Jann			
Medicaid (overheads)	Jann			
American Pharmacists Week	Jann			
Drug Discovery and Development	Clay			
Informatics in Health Care	Jann			

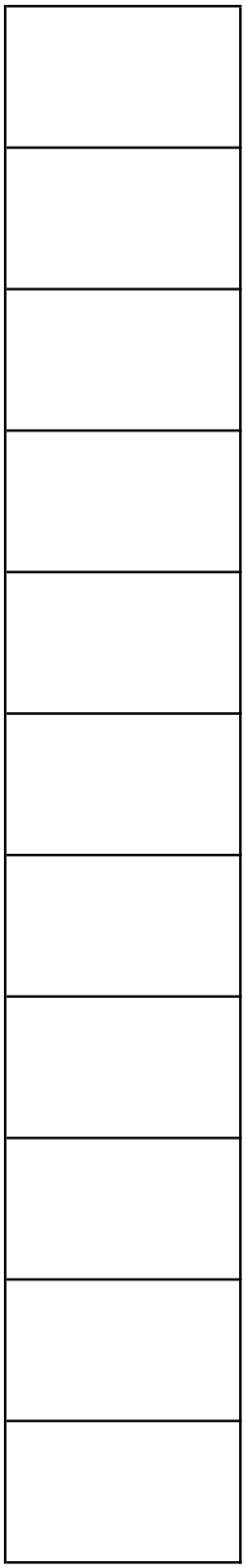
Drug Use, Access, and the Role of The Pharmaceutical Industry	Jann			
Medical Affairs/Pharmacovililance	Weiss			
Introduction to Drug Information	Worrall			
Introduction to Drug Information + Active Learning	Worrall			
Introduction to Drug Information + Active Learning – report to class	Worrall			
Basic Economic Principles Affecting Health + Care and Unique Aspects of Health Economics	Jann			
Private Health Insurance	Jann			
Healthcare Reform – ACA	Jann			
Advocacy and Leadership	Cohen			
Reading Assignment for discussion	Cohen			x
Discussion	Cohen			x

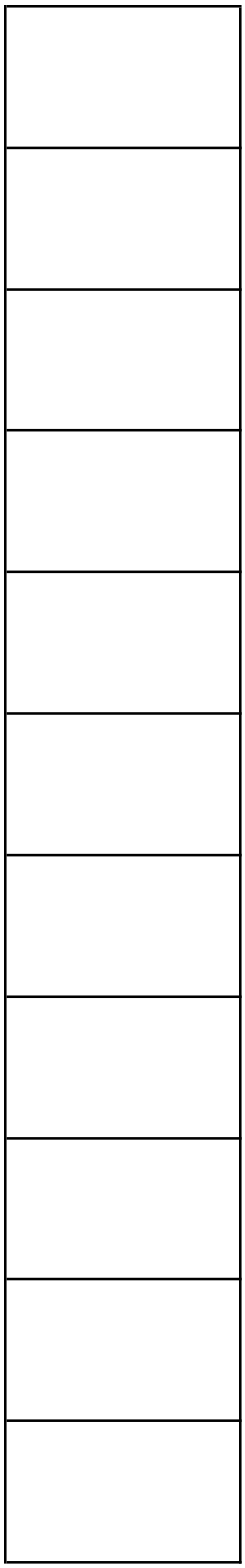
esearch Design According to ACPE 2016 Standards				
	Pharmacy Student Evalution			
Evaluate the reliability of the conclusions of published research studies	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**

x				
x				

Agreement







Calender Year : Spring 2014		Components of Re		
		Researcher Evaluation		
Class : 7321		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
Class Title	Class Instructor			
Overview of course + Review of elective assignments	Clay			
Bacterial taxonomy; Cell structures, Virulence factors, toxins; Bacterial Genetics	Simecka			
Gram-positive bacteria	Simecka			
Gram-negative bacteria – I	Simecka			
Gram-negative bacteria – II	Simecka			

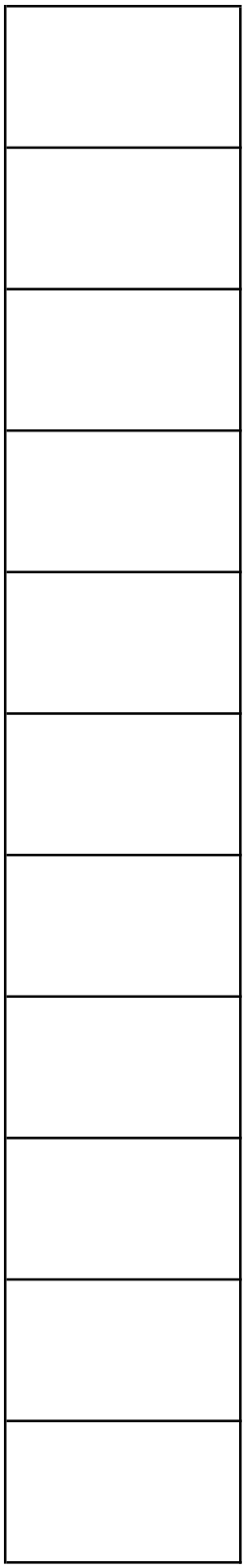
Mycobacterium, Mycoplasma	Simecka			
“DISEASE DETECTIVE: Name that bug”	Simecka + Clay			
Overview of Principles of Antimicrobial Therapy & Penicillins	Clay			
Cephalosporins (part 1)	Clay			
Cephalosporins (part 2)	Clay			
Carbapenems & Monolactams	Clay			
Sulfonamides, Macrolides & Tetracyclines	Clay			
Aminoglycosides, Macrolides & Fluoroquinolones	Clay			
Anti-infective Drug Classification and Unique + Characteristic Mnemonic due	Clay			
Bacterial resistance (part 1)	Weiss			
Bacterial resistance (part 2)	Weiss			

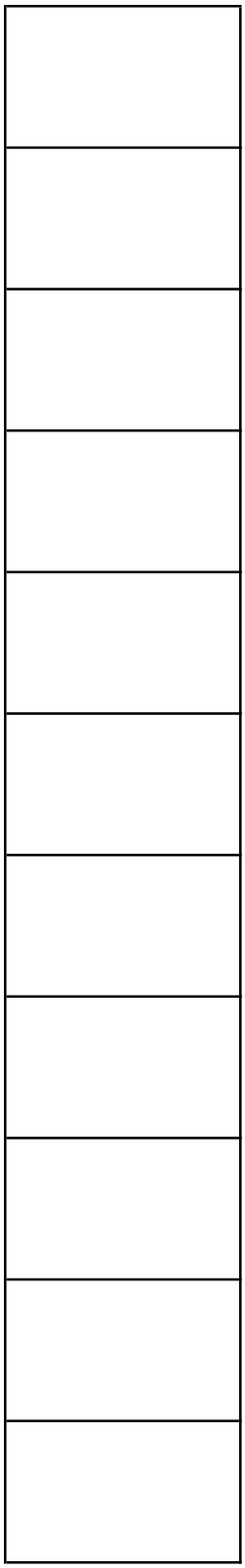
Current microbiologic testing methods	Weiss			
Universal precautions, Infection Control	Jowitt			
Host response to infection	Hodge			
Host response to infection (continued)	Hodge			
Epidemiology and transmission of viral pathogens	guest			
Viral pathogens	Clay			
Viral pathogens (continued)	Clay			
Viral pathogens (continued) & Introduction of antiviral agents	Clay			
Hepatitis A, B & C therapy	Clay			
Anti-HIV therapy I	Clay			
Anti-fungal therapy	Clay			

“Would I rather have a bacterial or viral infection?”	Clay			

esearch Design According to ACPE 2016 Standards				
	Pharmacy Student Evalution			
Evaluate the reliability of the conclusions of published research studies	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**

Agreement





Calender Year : Spring 2014		Components of Re		
		Researcher Evaluation		
Class : 7322		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
Class Title	Class Instructor			
Course Introduction, Nomenclature, and Goals of personalized Medicine	Barber			
History of Genetics, Genomics, and the Human Genome Project + Molecular Genetics 1	Barber	x	x	x
Molecular Genetics 2 hand-outs	Barber			
Review: Chromosomes to Transcription	Barber			
Recombinant DNA Technology, Microarrays, and, Quantitative PCR	Barber			

Mendelian Genetics	Barber			
Population Genetics 1	Barber			
Population Genetics 2	Barber			
Genomic Variation and Single Nucleotide + Polymorphisms (SNP's)	Barber			x
Genetics and Disease Susceptibility +Genetics of Complex Diseases	Barber			
Applied Genetics in Medicine	Barber			
Bioinformatics: Utilizing Databases	Barber			
Introduction to Drug Metabolism 1	Machu			
Introduction to Drug Metabolism 2	Machu			
Pharmacogenetics of Phase 1 Enzymes and its application	Machu			
Pharmacogenetics of Phase 2 Enzymes and its Application	Machu			

Drug Transporter Pharmacogenetics	Machu			
Drug Target Pharmacogenetics 1	Machu			
Drug Target Pharmacogenetics 2	Jacobson			
Pharmacogenomics in Drug Discovery and Drug Development 1	Jacobson			
Pharmacogenomics in Drug Discovery and Drug Development 2	Jacobson			
Pharmacogenomics and Treatment of Solid Tumors	Jacobson			
Pharmacogenomics of Hematologic Malignancies 1	Jacobson			
Pharmacogenomics of Hematologic Malignancies 2	Jacobson			
Pharmacogenomics and Transplantation	Jann			
Pharmacogenomics and Respiratory Disease	Machu			
Pharmacogenomics and Cardiovascular Disease	Toale			

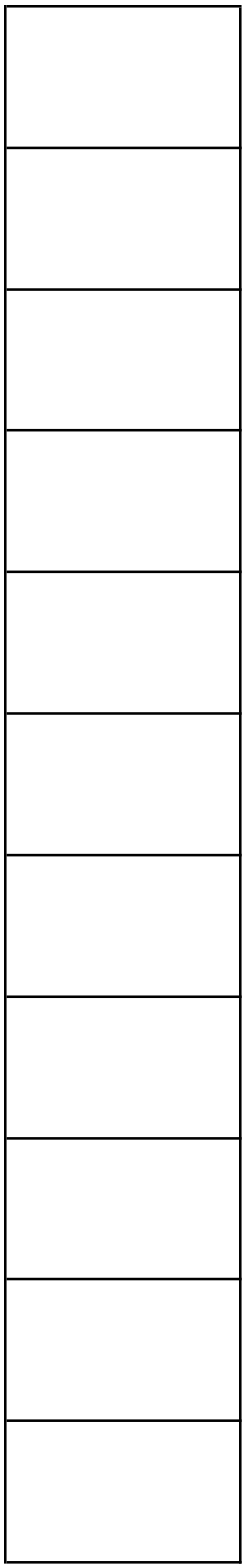
Warfarin Pharmacogenetics	Toale			
Pharmacogenomics and Infectious Disease	Clay			
Pharmacogenomics and Psychiatry	Jann			
Economic Aspects of Pharmacogenetics and Pharmacogenomics	Waycaster			
Ethics and Applied Pharmacogenetics and Pharmacogenomics 1	Martin			x
Ethics and Applied Pharmacogenetics and Pharmacogenomics 2	Martin			x

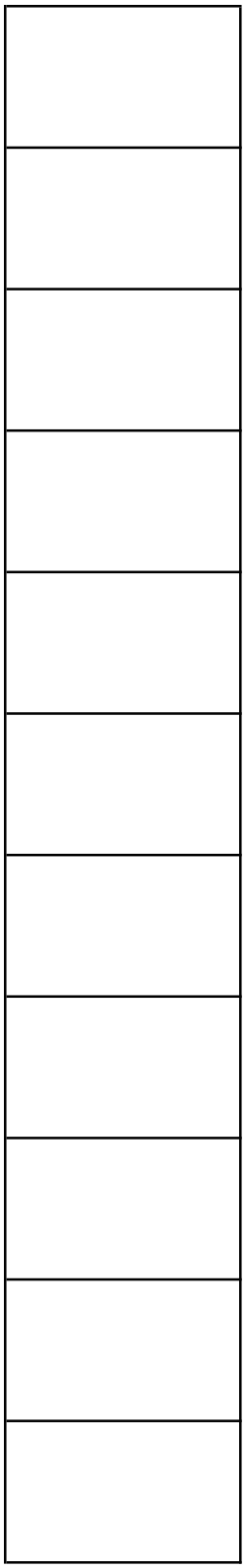
esearch Design According to ACPE 2016 Standards				
	Pharmacy Student Evalution			
Evaluate the reliability of the conclusions of published research studies	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**
x				

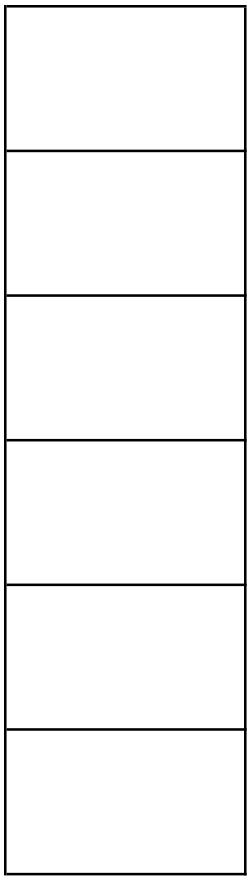
x				

x				
x				

Agreement







Calender Year : Spring 2014		Co Researcher	
Class : 7323		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**
Class Title	Class Instructor		
Parenteral routes of drug delivery	Di Pasqua		
Parenteral product components	Prokai		
Methods of sterilization	Di Pasqua		
Drug preparation	Dong		
Calculations for parenteral products and administration	Prokai		

Topical drug delivery I: Transdermal delivery systems	Prokai		
Topical drug delivery II: Patches & Needle free systems.	Dong		
Topical drug delivery III: Rectal and vaginal routes	Di Pasqua		
Topical drug delivery IV: Otic drug delivery	Prokai		
Topical drug delivery V: Ophthalmic drug delivery	Prokai		
Topical drug delivery VI: Nasal drug delivery	Dong		
Topical drug delivery VI: Pulmonary drug delivery	Dong		
Novel dosage forms and drug delivery systems	Dong		
Vaccines	Dong		
Products of biotechnology	Dong	x	x
Products of biotechnology	Dong	x	x

Polymers and macromolecules	Dong		
Radiopharmaceuticals	Di Pasqua		
Pharmaceutical nanotechnology	Di Pasqua		
Modern analytical techniques used in pharmaceutical sciences & Lab Visits	Prokai	x	x
Prodrugs	Prokai		
Physicochemical drug interactions and incompatibilities	Di Pasqua		
ADME	Di Pasqua		
Dosage form design	Di Pasqua	x	x
Drug development and approval process	Prokai	x	x

omponents of Research Design According to ACPE 2016 Standards

Evaluation		Pharmacy Student Evalution		
Evaluate the validity of the conclusions of published research studies	**Evaluate the reliability of the conclusions of published research studies**	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**

x	x			
x	x			

x	x			
x	x			

Evaluate the reliability of the conclusions of published research studies	**Agreement**

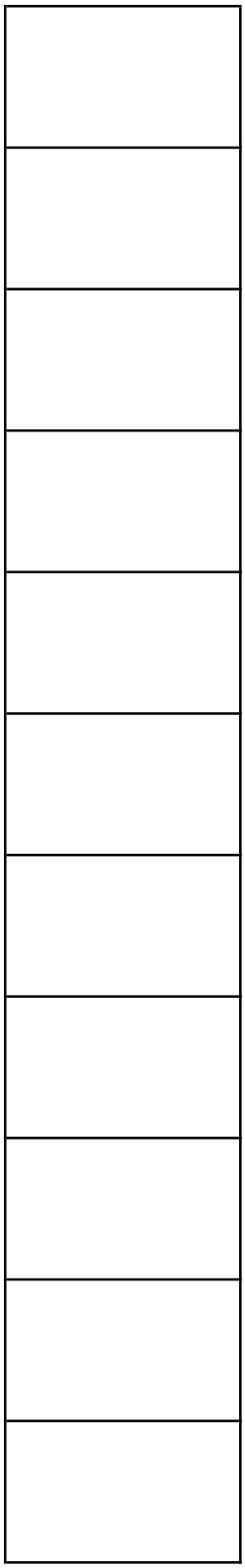
Calender Year : Spring 2014		Components of Re		
		Researcher Evaluation		
Class : 7325		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
Class Title	Class Instructor			
Course Orientation	Cohen			
Communication Self-Assessment	Cohen			
Intro to Principles of Communication	Elrod			
Principles and Elements of Interpersonal Communication	Elrod			
Pro-Con Speech Activity	Cohen/Elrod			

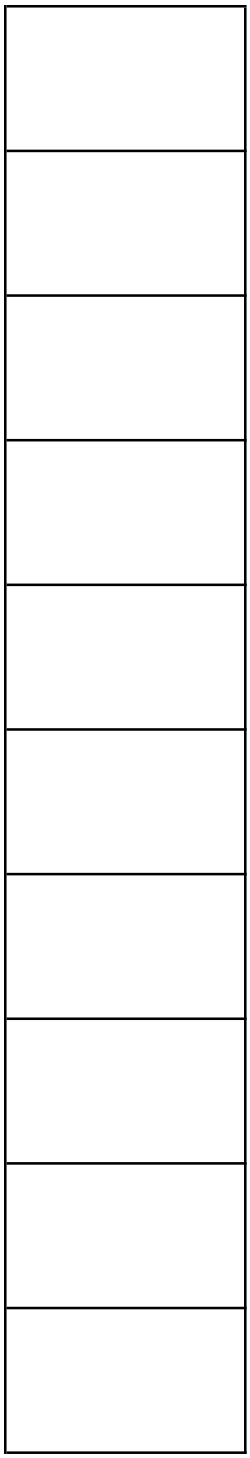
Nonverbal Communication	Elrod			
Empathy and Active Listening	Cohen			
Barriers to Communication	Cohen			
Assertiveness	Cohen			
Legal Requirements in Counseling and Communication	Elrod			
Interviewing & Assessing	Cohen	x	x	
Interprofessional Communication + Group/Panel Discussion	Cohen/Elrod			
Communication Strategies for Difficult Patients	Cohen			
Communication of Sensitive Health Topics	Elrod			
Cultural Diversity and Health Literacy	Elrod			
Communication with Children and Families	Guest			

Communication and the Dying	Guest			
Gender and Generational + Difference in Communication	Cohen			
Helping Patients Manage Therapeutic + Regimens	Elrod			
Medication Errors and Patient Safety Children and Families	Elrod			
Electronic Communication	Cohen			
Ethical Behavior in Patient Communication	Cohen			
Clinical Documentation	Elrod			
Leadership Development	Cohen			
HIPAA and Communication	Elrod			
Patient Counseling Reflection	Elrod			

esearch Design According to ACPE 2016 Standards				
	Pharmacy Student Evalution			
Evaluate the reliability of the conclusions of published research studies	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**

Agreement





Calender Year : Fall 2014		Components of Re		
		Researcher Evaluation		
Class : 7331		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
Class Title	Class Instructor			
Course Introduction	Penzak			
Cells and Organs of the Immune System	Berg			
Innate Immunity	Berg			
Immunogenicity and Antigenicity	Berg			
Antigen-presenting molecules	Berg			
Antigen-presenting cells	Berg			

Surface interactions	Berg			
Intracellular signaling and T-cell activation	Berg			
B-cell activation and signaling	Hodge			
Antibodies	Hodge			
Antibody diversity	Hodge			
Complement	Hodge			
Phagocytosis and Intracellular killing	Simecka			
Antibodies and in vivo Therapy	Berg			
Antibodies and in vitro Research & Diagnostics	Berg			
Immediate Allergic Reactions	Berg			
Autoimmunity	Hodge			

Transplantation	Hodge			
Antigen presentation for cell-mediated response	Hodge			
Delayed-type hypersensitivity reactions	Hodge			
Cytotoxic T cells	Berg			
Natural Killer Cells	Simecka			
Factors that Influence Immune Response	Simecka			
Cytokines and Biologic Modifiers	Simecka			
Vaccines in Theory and Practice I	Simecka			
Vaccines in Theory and Practice	Simecka			
Vaccine Preventable Diseases	Simecka			
Prevention of allergic reactions	Penzak			

Acquired Immunodeficiency Syndrome	Clay			
Public Health Considerations for Vaccine + Preventable Diseases	Jann			
Immunosuppressants I	Penzak			
Immunosuppressants II	Penzak			
Immune Diseases: Lupus Nephritis, IgA Nephropathy, and Rheumatoid Arthritis	Penzak			
Immune Diseases: Inflammatory Bowel Disease (IBD); Celiac Disease	Penzak			
Immune Diseases: Chest	Clay			
Immunomodulators I	Clay			
Immunomodulators II	Clay			

esearch Design According to ACPE 2016 Standards				
	Pharmacy Student Evalution			
Evaluate the reliability of the conclusions of published research studies	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**

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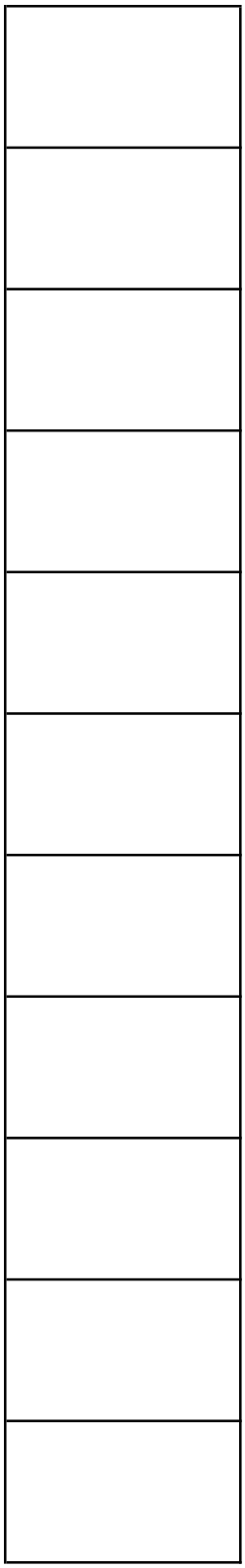

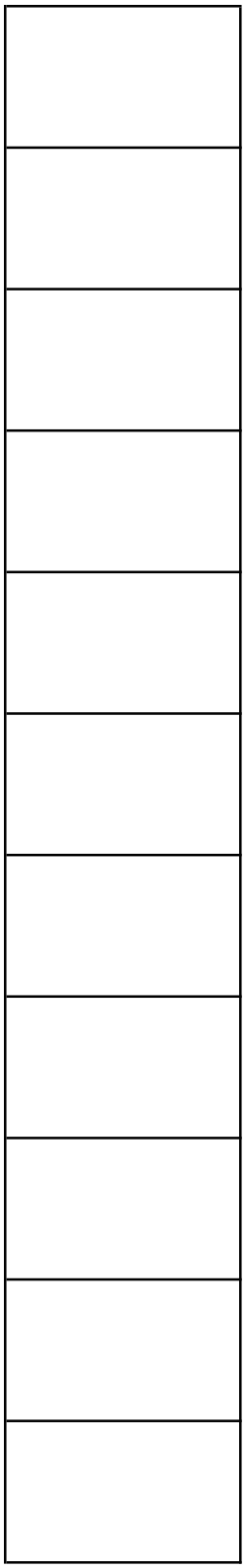

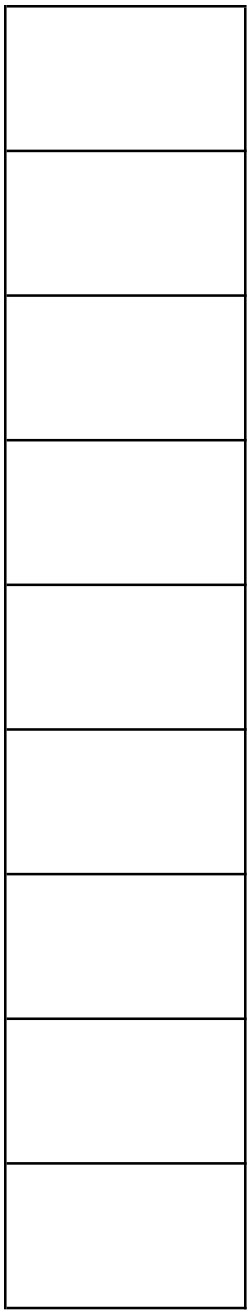

Calender Year : Fall 2014		Co Researcher	
Class : 7335		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**
Class Title	Class Instructor		
Course Introduction/History of Public Health	Jann		
Foundations of Public Health	D. Thombs, PhD, EdS		
Determinants of Health	W. Migala, PhD	x	x
Epidemiology and Disease	W. Migala, PhD	x	x
Public Health System: Local, State and National Levels	H.F. Chen, MD, PhD		
Public Health Services: Local, State and National Delivery	W. Migala, PhD		
Global Health Issues, Diversity, and Cultural Competence	Jann		

Screening, Health Promotion and Education	S. Aria, MD, PhD		
Health Surveillance/PublicHealth Outcomes	S. Aria, MD, PhD		
Interprofessional Education Activity			
Interprofessional Education Activity			
Health Services Financing and Policy	K. Lykens, MPA, PhD		
Environmental and Occupational Health	A. Rich, MPH, PhD		
Emergency Preparedness and Response	Jann		
Law and Ethics in Public Health	Jann		
Introduction to Pharmacoeconomics and Types of Pharmacoeconomic Studies	Jann		
Outcomes: ECHO Model/ Efficacy vs. Effectiveness	Jann		
Measuring and Estimating Costs: Terms, Categories, Resources for Cost Estimations	Jann		

Cost-Minimization Analysis	Jann		
Cost-Effectiveness Analysis	Jann		
Cost-Effectiveness Analysis	Jann		
Decision Analysis:	Jann		
Decision Analysis: Markov Models	Jann		
Cost Utility Analysis	Gilligan		
Health Status Measures vs Utility Measures	Gilligan		
Domains of Health Status and Assessing Health Status Incidence	Gilligan		
Evaluating Pharmacoeconomic Research: Methods of Analysis and Question to Ask	Waycaster	x	x
Pharmacoeconomics of Pharmacy Services I: Drug Development	Jann		
Pharmacoeconomics of Pharmacy Services II: Drug Treatment	Jann		

Pharmaceutical Policy Goals	Palmer		
Pharmaceutical Policy Stakeholders	Palmer		
Pharmaceutical Policy Dysfunction I: Patient and Provider Factors	Palmer		
Pharmaceutical Policy Dysfunction II: Systems Factors	Palmer		
Elements of Successful Pharmaceutical Policy: Safe and Effective Supply and Access	Palmer		
Elements of Successful Pharmaceutical Policy: Industrial Policy and Government	Palmer		
Formularies	Palmer		
Small Group Presentation	Jann		

omponents of Research Design According to ACPE 2016 Standards

Evaluation		Pharmacy Student Evalution		
Evaluate the validity of the conclusions of published research studies	**Evaluate the reliability of the conclusions of published research studies**	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
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x	x			

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Evaluate the reliability of the conclusions of published research studies	**Agreement**

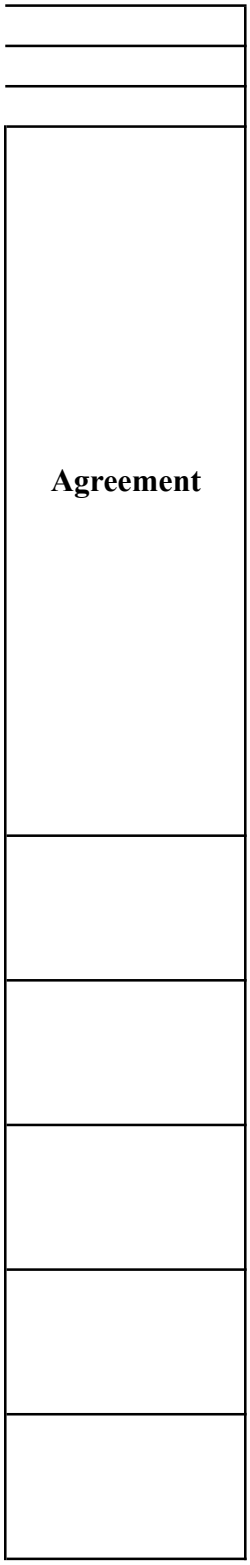
Calender Year : Spring 2015		Components of Re		
		Researcher Evaluation		
Class : 7341		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
Class Title	Class Instructor			
Course Introduction / Epidemiology and Diabetes Overview	Yarabinec			
Pathophysiology of Type 1 Diabetes / Assessment and Diagnosis of Diabetes	House			
Pathophysiology of Type 2 Diabetes: Insulin Resistance and Sensitivity	House			
Medicinal Chemistry of Insulin and Non-Insulin Therapy	Wang			
Pharmacology of Insulin and Non-Insulin Therapy	Machu			

Non-Drug Therapy Guidelines and Medications for Type 2 Diabetes	Yarabinec			
Outpatient Therapy of Type 1,Type 2, and Gestational Diabetes: Oral and Non-Insulin Injectable Medications	Yarabinec			
Outpatient Therapy of Type 1,Type 2, and Gestational Diabetes: Insulin Initiation, Dosing, and Adjustments	Yarabinec			
Insulin Devices and Monitoring; Pathophysiology and Monitoring of Diabetes Complications	Yarabinec			
Cardiovascular Risks / Goals and Follow-Up	Payne			
Diabetic Ketoacidosis and Hyperosmolar Hyperglycemic State	Gibson			
Inpatient Management of Diabetes	D. Yarabinec			
Case-Based Application	Yarabinec			
Case-Based Application and Exam Review	All Involved Faculty			
Pathophysiology of Pituitary Disorders	Jann			
Pharmacology of Pituitary Disorders	Pang			

Therapeutics of Pituitary Disorders	Jann			
Pathophysiology and Pharmacology of Adrenal Disorders	Yarabinec/Pang			
Therapeutics of Adrenal DisordersDrug Antagonism	Martin			
Pathophysiology of Thyroid Disorders	Martin			
Pharmacology of Thyroid Disorders	Martin			
Therapeutics of Hypo- and Hyperthyroid Disorders	Tatachar			
Pathophysiology of Male Reproductive System, Female Reproductive System, and Menstrual cycle	Payne			
Medicinal Chemistry of Estrogens, Progestins, and Androgens	Wang			
Pharmacology of Estrogens, Progestins, and Androgens	Pang			
Therapeutics of Estrogens, Progestins, and Androgens	House			
Consequences of Adrenal Suppression	Ray			

Pathophysiology and Background of Contraception / Contraceptive Devices / Nonhormonal Therapy	Gutierrez			
Medicinal Chemistry and Pharmacology of Contraception and Emergency Contraception	Pang			
Therapeutics of Contraception and Emergency Contraception	Payne			
Patient Cases - Contraception	Gutierrez / Payne			
Menstrual Disorders, Endometriosis, and Polycystic Ovary Syndrome	Payne			
Pathophysiology of Infertility	Payne			
Pelvic Inflammatory Disease and Female Infertility Treatment	Payne			
Medicinal Chemistry and Pharmacology of Erectile Dysfunction	Pang			
Therapeutics of Erectile Dysfunction / Male-Pattern Baldness	Tatachar			

esearch Design According to ACPE 2016 Standards				
	Pharmacy Student Evalution			
Evaluate the reliability of the conclusions of published research studies	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**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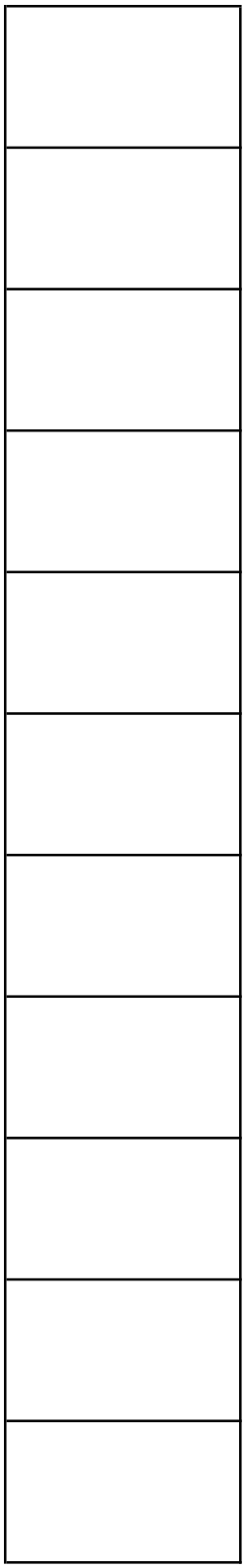

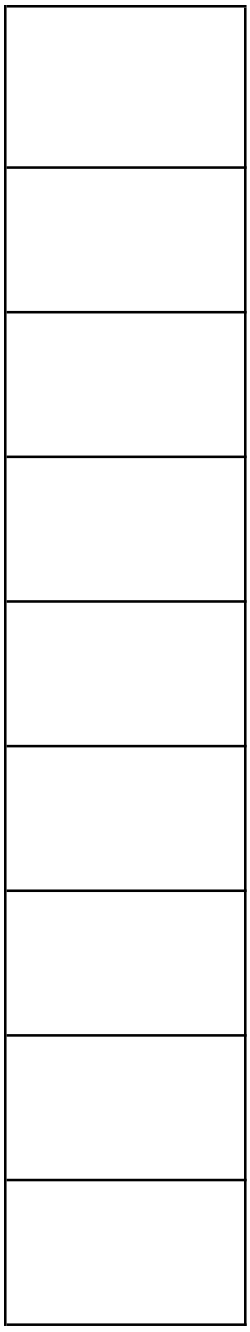

Calender Year : Spring 2015		Components of Re		
		Researcher Evaluation		
Class : 7343		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
Class Title	Class Instructor			
Course Introduction / Math fundamentals / Introduction to PK-PD	Penzak			
Basic Pharmacokinetics; half-life, elimination rate, and AUC	Penzak			
Drug Absoprtion	Penzak			
Drug Distribution and Plasma Protein Binding	Jann			
Drug Distribution and Membrane Transporters	Penzak			
Drug Metabolism	Penzak			

Drug Elimination	Penzak			
Clearance Concepts	Jann			
Clearance Concepts & Intravenous bolus	Jann /Penzak			
Intermittent and continuous infusion	Penzak			
Multiple-dose administration and Steady State Average Concentrations	Jann			
One and Two compartment models	Penzak			
Non-compartmental analysis –introduction, explanation, and sample calculations	Penzak			
Non-compartmental analysis –in-class exercise calculations using Microsoft Excel	Penzak			
Drug interactions	Penzak			
Non-linear Processes	Jann			
Non-linear Processes	Jann			

Pharmacokinetic Considerations in Obesity	Penzak			
Pharmacokinetic Considerations in Geriatric Patients	Horoho			
Pharmacokinetic Considerations in Pediatric Patients	Kastelic & Ho			
Pharmacokinetic Considerations in Renal Dysfunction	Ramanathan			
Pharmacogenomics	Hocum			
Pharmacogenomics	Hocum			
Population Pharmacokinetics	Jann			
Drug Monitoring or Pharmacokinetic Considerations in hepatic dysfunction	Penzak			
Bioequivalence	Penzak			
Aminoglycosides (standard dosing / calculations)	Ramanathan			
Aminoglycoside calculations	Ramanathan/ Penzak			

Aminoglycosides (extended interval dosing / calculations)	Ramanathan			
Aminoglycoside calculations	Ramanathan/ Penzak			
Digoxin	Chen			
Warfarin	Gutierrez			
Vancomycin	Ramanathan			
Vancomycin Calculations	Ramanathan/ Penzak			
Lithium	Jann			
Phenytoin / fosphenytoin	Jann			
Antiepileptics pharmacokinetic calculations	Jann			

esearch Design According to ACPE 2016 Standards				
	Pharmacy Student Evalution			
Evaluate the reliability of the conclusions of published research studies	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**

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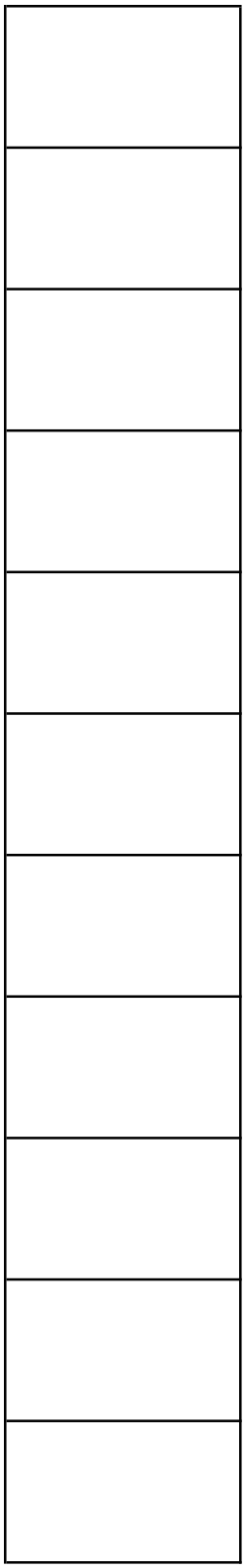

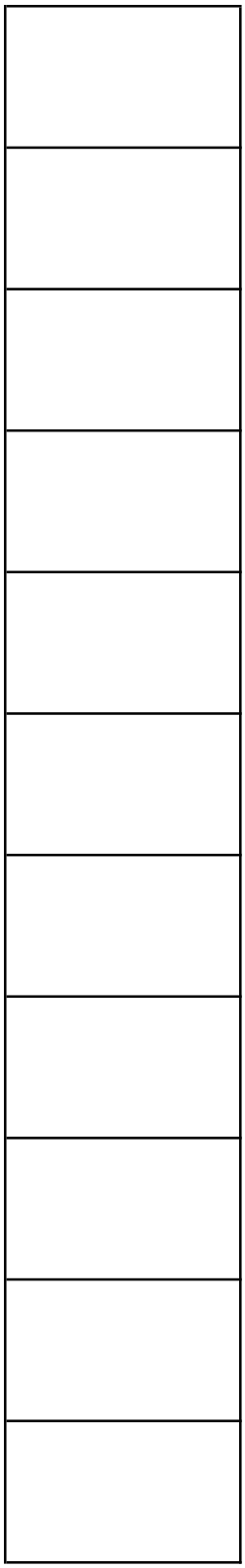

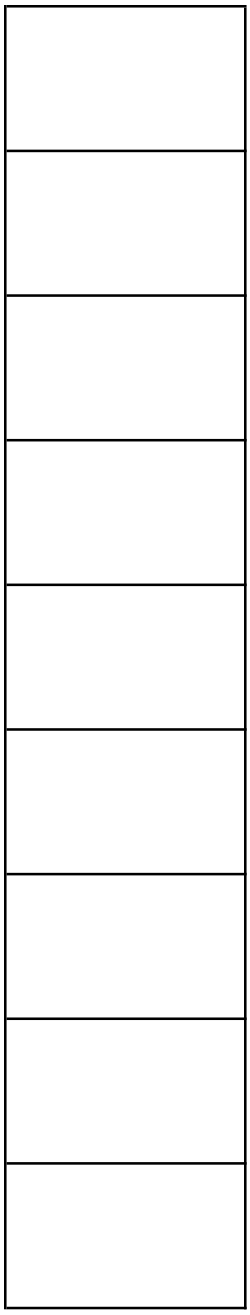

Calender Year : Spring 2015		Co Researcher	
Class : 7345		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**
Class Title	Class Instructor		
Course Introduction	Gibson		
Introduction to Medication information	Killam-Worrall		
Evidence Based Medicine	Killam-Worrall		
Evidence Based Medicine	Killam-Worrall		
Systematic Approach to Drug Information Requests	Killam-Worrall		

Systematic Approach to Drug Information Requests	Killam-Worrall		
Define the Clinical Question	Killam-Worrall	x	
Drug Information Resources Tertiary and On-Line	Killam-Worrall		
Drug Information Resources Tertiary and On-Line	Killam-Worrall		
Drug Information Resources: Secondary	Killam-Worrall		
Drug Information Resources: Secondary	Killam-Worrall		
Drug Information Resources: Primary	Killam-Worrall		
Medication Monograph	Killam-Worrall		
General Principles of Study Design	Killam-Worrall	x	x
General Principles of Study Design	Killam-Worrall	x	x
Biostatistics Review: Variables, Descriptive Statistics	Penzak		

Biostatistics Review: Population Distributions, Hypotheses, and Types of Error	Penzak		
Biostatistics Review: Nominal Data, Parametric Data	TBA		
Biostatistics Review: Parametric data continued, Nonparametric Data	TBA		
Biostatistics Review: Correlation and Regression	TBA		
Biostatistics Review: Survival Analyses	Gibson		
Study Design: Pre-Clinical Studies; Data Presentation and Interpretation	Jann	x	x
Study Design: Pre-Clinical Studies; Data Presentation and Interpretation	Jann	x	x
Study Design: Pre-Clinical Studies; Data Presentation and Interpretation	Jann	x	x
Observational Study Design: Case reports & case series	Gibson	x	x
Observational Study Data Presentation & Interpretation: Case reports & case series	Gibson		
Observational Study Design: Cross Sectional Studies	TBA	x	x

Observational Study Data Presentation & Interpretation: Cross Sectional Studies	TBA	x	x
Observational Study Design: Case Control studies	TBA	x	x
Observational Study Data Presentation & Interpretation: Case Control Studies	TBA	x	x
Observational Study Design: Cohort Studies	TBA	x	x
Observational Study Data Presentation & Interpretation: Cohort Studies	TBA	x	x
Study Design: Clinical Trials	Gibson	x	x
Study Design: Clinical Trials	Gibson	x	x
Study Design: Clinical Trials	Gibson	x	x
Data Presentation and Interpretation: Clinical Trials	Gibson	x	x
Data Presentation and Interpretation: Clinical Trials	Gibson	x	x
Data Presentation and Interpretation: Clinical Trials	Gibson	x	x

Data Presentation and Interpretation: Clinical Trials	Gibson	x	x
Data Presentation and Interpretation: Clinical Trials	Gibson	x	x
Study Design: Meta-Analysis and Systematic Review – Data and Interpretation	Killam-Worrall	x	x
Study Design: Meta-Analysis and Systematic Review – Data and Interpretation	Killam-Worrall	x	x
Evidence-Based Guidelines	Killam-Worrall		
Evidence-Based Guidelines	Killam-Worrall		

ɔmponents of Research Design According to ACPE 2016 Standards

Evaluation		Pharmacy Student Evalution		
Evaluate the validity of the conclusions of published research studies	**Evaluate the reliability of the conclusions of published research studies**	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
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Evaluate the reliability of the conclusions of published research studies	**Agreement**

Calender Year : Fall 2015		
Class : 7352		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**
Class Title	Class Instructor	
Course Introduction / Introduction to Pulmonary Testing	Howard	
Asthma and COPD: Pathophysiology	Howard	
Asthma and COPD: Pathophysiology	Howard	
Asthma and COPD: Pathophysiology	Howard	
Asthma and COPD: Medicinal Chemistry	Liu	

Asthma and COPD: Med. Chem/Pharmacology	Liu/Machu	
Asthma and COPD: Pharmacology	Machu	
Asthma: Pharmacotherapy	Howard	
Asthma: Pharmacotherapy	Howard	
Asthma: Pharmacotherapy	Howard	
Asthma: Pharmacotherapy – Case Studies	Howard	
COPD: Pharmacotherapy	Howard	
COPD: Pharmacotherapy – Case Studies	Johns	
Drug-Induced Pulmonary Disease: Pathophysiology and Pharmacotherapy	Howard	
Drug-Induced Pulmonary Disease: Pathophysiology and Pharmacotherapy	Howard	
GI Tract Evaluation	Gaviola	

GERD and PUD: Pathophysiology	Tatachar	
GERD and PUD: Medicinal Chemistry	Liu	
GERD and PUD: Pharmacology	Ellis	
GERD and PUD: Pharmacotherapy	Tatachar	
GERD and PUD: Pharmacotherapy	Tatachar	
GERD and PUD Pharmacotherapy – Case Studies	Tatachar	
Diarrhea and Constipation and Irritable Bowel Syndrome: Pathophysiology	Howard	
Diarrhea and Constipation and Irritable Bowel Syndrome: Pharmacology	Ellis	
Diarrhea and Constipation and Irritable Bowel Syndrome: Pharmacotherapy	Howard	
Diarrhea and Constipation and Irritable Bowel Syndrome: Pharmacotherapy – Case Studies	Howard	
Inflammatory Bowel Diseases: Pathophysiology	Gaviola	

Inflammatory Bowel Diseases: Medicinal Chemistry	Liu	
Inflammatory Bowel Diseases: Pharmacology	Ellis	
Inflammatory Bowel Diseases: Pharmacotherapy	Gaviola	
Nausea and Vomiting: Pathophysiology	Gaviola	
Nausea and Vomiting : Pharmacology	Ellis	
Nausea and Vomiting: Pharmacotherapy	Gaviola	
Celiac Disease	Gaviola	
Hepatic Disease: Pathophysiology – Encephalopathy, Cirrhosis, Portal Hypertension	Gibson	
Hepatic Disease: Pathophysiology – Encephalopathy, Cirrhosis, Portal Hypertension	Gibson	
Hepatic Disease: Pathophysiology – Encephalopathy, Cirrhosis, Portal Hypertension	Gibson	
Drug-Induced Hepatic Disease: Pathophysiology and Pharmacotherapy	Gaviola	

Drug-Induced Hepatic Disease: Pathophysiology and Pharmacotherapy	Gaviola	
Pancreatitis: Pathophysiology and Pharmacotherapy	Gaviola	

Components of Research Design According to ACPE 2016 Standar

Researcher Evaluation			Pharmacy Stu	
Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**

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dent Evalution		
Evaluate the validity of the conclusions of published research studies	**Evaluate the reliability of the conclusions of published research studies**	**Agreement**

Calender Year : Fall 2015		Cc Researcher	
Class : 7353		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**
Class Title	Class Instructor		
Course Introduction Pathophysiology of Migraine and Vascular Headaches	Yuet		
Pharmacotherapy of Migraine and Vascular Headaches	Yuet		
Pathophysiology of Epilepsy and Seizure Disorders	Jann		
Medicinal Chemistry of Anti-seizure Medications	Emmitte		
Pharmacology of Anti-seizure Medications	Pang		
Pharmacotherapy of Seizure Disorders	Jann		

Pharmacotherapy of Seizure Disorders	Jann		
Pathophysiology of Parkinson's Disease	Jann		
Medicinal Chemistry & Pharmacology of Parkinson's Disease	Emmitte		
Pharmacotherapy of Parkinson's Disease	Jann		
Pathophysiology of Attention Deficit Hyperactivity Disorder	Yuet		
Medicinal Chemistry & Pharmacology of Stimulants and other ADHD medications	Pang		
Pharmacotherapy of Attention Deficit Hyperactivity Disorder	Yuet		
Pathophysiology of Schizophrenia	McClelland		
Medicinal Chemistry of Antipsychotics	Emmitte		
Pharmacology of Antipsychotics	Pang		
Pharmacotherapy of Schizophrenia	McClelland		

Pharmacotherapy of Schizophrenia	McClelland		
Pathophysiology of Major Depressive Disorder	Yuet		
Medicinal Chemistry of Antidepressants	Emmitte		
Pharmacology of Antidepressants	Pang		
Pharmacotherapy of Major Depressive Disorder	Yuet		
Pharmacotherapy of Major Depressive Disorder	Yuet		
Pathophysiology of Anxiety Disorders	Jann		
Medicinal Chemistry & Pharmacology of Benzodiazepines	Emmitte		
Pharmacotherapy of Generalized Anxiety Disorder, Panic Disorder, and Phobias	Jann		
Pharmacotherapy of Obsessive Compulsive Disorder and Post-Traumatic Stress Disorder	Jann		
Pharmacotherapy of Insomnia	Jann		

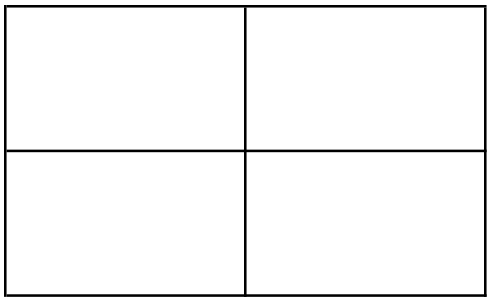
Pharmacotherapy of Narcolepsy and Other Sleep Disorders	Jann		
Pathophysiology of Dementia/Alzheimer's Disease	Downs		
Medicinal Chemistry & Pharmacology of Alzheimer's Disease	Pang		
Pharmacotherapy of Alzheimer's Disease	Downs		
Pharmacotherapy of Alzheimer's Disease	Downs		
Pathophysiology of Bipolar Disorder	Nelson		
Pathophysiology of Bipolar Disorder	Nelson		
Pharmacotherapy of Bipolar Disorder	Nelson		
Pharmacotherapy of Bipolar Disorder	Nelson		
Medicinal Chemistry of Opioids and Other Pain Medications	Emmitte		
Pharmacology of Opioids and Other Pain Medications	Pang		

Case-Based Application – Pain Management	Payne	x	x
Case-Based Application – Pain Management	Payne	x	x

omponents of Research Design According to ACPE 2016 Standards

Evaluation		Pharmacy Student Evalution		
Evaluate the validity of the conclusions of published research studies	**Evaluate the reliability of the conclusions of published research studies**	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**

Evaluate the reliability of the conclusions of published research studies	**Agreement**



Calender Year : Fall 2015		Co Researcher	
Class : 7354		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**
Class Title	Class Instructor		
Introduction to Course; Role of the Pharmacist in Nutrition and Counseling	Allen		
Essentials of Nutrition	Yuet		
Role of Nutrition and Chronic Disease Management – Cardiovascular Disorders	Yuet		
Role of Nutrition and Chronic Disease Management - Diabetes	Yuet		
Vitamin and Mineral Supplements	Allen		

Ergogenic Aids	Allen		
Role of Dietitians and Nutritionist in Healthcare	Powell		
Basics of Enteral Nutrition	Leiby		
Basics of Parenteral Nutrition	Leiby		
Natural Products – Drug Interactions	Penzak		
Food - Drug Interactions	Allen		
Weight Management Programs Focus on Obesity	Yuet		
Pediatric Nutrition	Deen		
Eating Disorders and their Health Consequences, Part 1	Jann		
Eating Disorders and their Health Consequences, Part 2	Jann		
The Pharmacist's Role in Facilitating Behavioral Changes – Pharmacist's Recovery	Jann		

Drug, Alcohol, and Nicotine Abuse and their Health Consequences	Jann		
Detection of Drugs of Abuse in Drug Screens	Jann		
Abuse of Prescription Drugs, Part 1	Yuet		
Abuse of Prescription Drugs, Part 2	Yuet		
Abuse of Illicit Drugs	Yuet		
Pharmacological and Non-Pharmacological Approaches to Opiate Cessation – Narcotics Anonymous	Jann	x	x
Pharmacological and Non-Pharmacological Approaches to Alcohol Cessation – Alcoholic Anonymous	Jann	x	x
Pharmacological and Non-Pharmacological Approaches to Nicotine Cessation	Jann	x	x
Basic Principles of Toxicology	Ray		
Clinical Laboratory Tests for Acute and Chronic Exposure to Toxicants	Ray		x
Treatment of Acute Poisoning – Basic Principles	Ray		

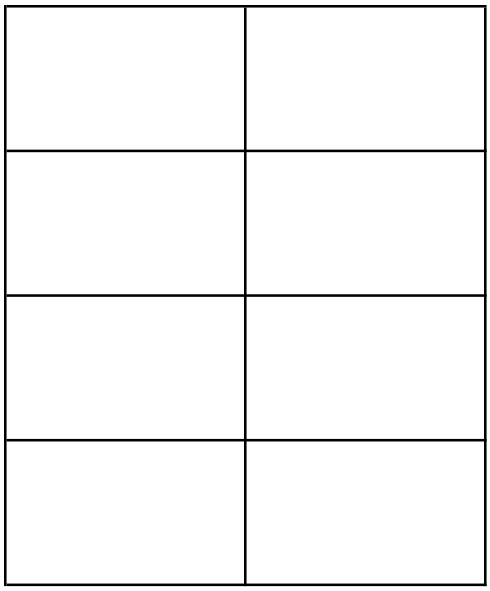
Management of Drug Toxicity and Drug Overdose 1 – Iron, Carbon Monoxide Poisoning	Ray		
Management of Drug Toxicity and Drug Overdose 2 - Acetaminophen	Current		
Management of Drug Toxicity and Drug Overdose 3 – Aspirin, NSAIDS	Current		
Management of Drug Toxicity and Drug Overdose 4 - Opiates	Jann		
Management of Drug Toxicity and Drug Overdose 5 - Benzodiazepines	Jann		
Management of Drug Toxicity and Drug Overdose 6 – Psychiatric Drugs	Jann		
Management of Drug Toxicity and Drug Overdose 7 - Cardiovascular toxicity	Current		
Management of Drug Toxicity and Drug Overdose 8 – Alcohol Intoxication and Management	Current		
Management of Drug Toxicity and Drug Overdose 8 – Alcohol Intoxication and Management Part 2	Current		
Pediatric Considerations in Toxicology	Miller		
Medication Poisonings in Senior Adults	Yarabenic		

Poisonous Plants	Ramanathan		
Poisonous Plants – Part 2	Ramanathan		
Venomous Animals and Treatments	Cloud		
Veterinary Toxins	Cloud		

omponents of Research Design According to ACPE 2016 Standards

Evaluation		Pharmacy Student Evalution		
Evaluate the validity of the conclusions of published research studies	**Evaluate the reliability of the conclusions of published research studies**	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**

Evaluate the reliability of the conclusions of published research studies	**Agreement**



Calender Year : Fall 2015		Components of Re		
		Researcher Evaluation		
Class : 7355		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
Class Title	Class Instructor			
Course Introduction / Pharmacy Management Functions	Jann			
Leadership in Health Care	M. Williams			
Leadership in Pharmacy – Managing Change in Healthcare	Panel – Pharmacy Directors			
Leadership in Pharmacy	White			
Organizational Structure and Behavior	Jann			

Human Resources Management Functions	Epshetyn			
Performance Appraisal Systems	White			
Employee Behavior Problems	Jann			
Interviewing/ Hiring Process	Jann			
Time Management	White			
Customer Service	Jann			
Pharmacist-in-Charge (PIC) Principles and Application in Community and Hospital Practice	Epshetyn			
Starting a Pharmacy	Jann			
Basic Financial Principles – Accounting 1	Jann			
Basic Financial Principles – Accounting 2	Jann			
Basic Financial Principles – Accounting 3 Cash Flow	Jann			

Break Even Analysis	Jann			
Ratio Analysis	Jann			
Budgeting	Du			
Third Party Payers	Jann			
Third Party Payers	Jann			
Basic Financial Principles – Accounting 4 Hospital Budget	Jann			
Personal Finance	Du			
Personal Finance	Du			
Strategic Planning in Pharmacy Operations	White			
Purchasing and Inventory Management	White			
Purchasing and Inventory Management	White			

Appraising the Need for Value-Added Services	Jann			
Implementing Value-Added Pharmacy Services	Allen			
Compensation for Value-Added Pharmacy Services	Allen			
Achieving and Measuring Patient Satisfaction	Jann			
Business Planning for Pharmacy Operations	Jann			
Ensuring Quality in Pharmacy Operations (CQI)Marketing Application	Jann			
Merchandising and Branding	Jann			
Marketing Theory	Allen			
Marketing Application	Allen			
Patient Safety – Focus on Preventable Harm	Williams			
Risk Management	Jann			

Risk Management – Root Cause Analysis	Jann			
Medication Errors – Systems	Asonganyi			
Medication Errors – Human	Asonganyi			
Error Reduction Programs	Asonganyi			
Cultivating Professionalism as a Pharmacist Manager	Jann			
Incorporating Professionalism into Personal Brand	Jann			
Compliance with Regulations and Regulatory Agencies	Epshetyn			

esearch Design According to ACPE 2016 Standards				
	Pharmacy Student Evalution			
Evaluate the reliability of the conclusions of published research studies	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**

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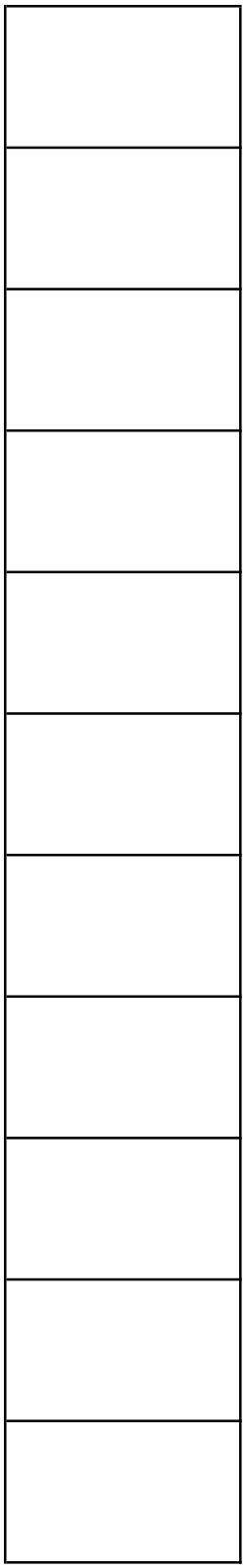
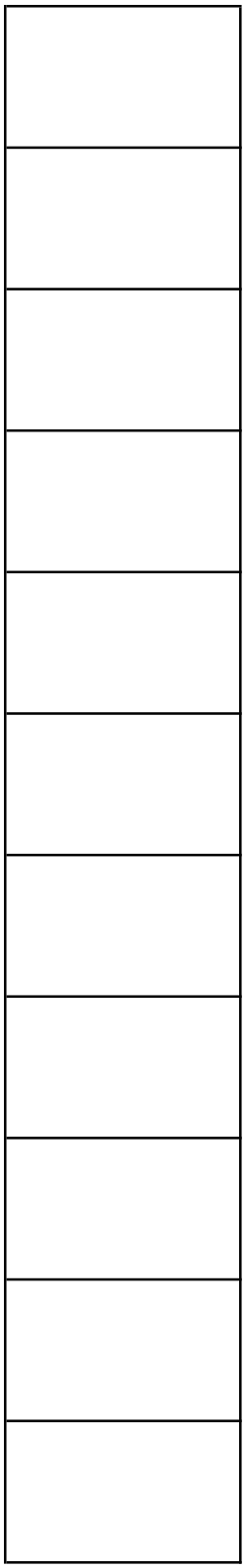
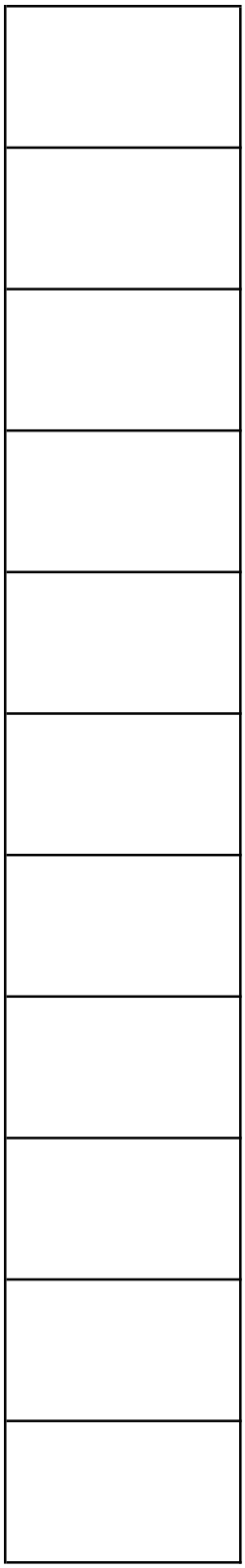
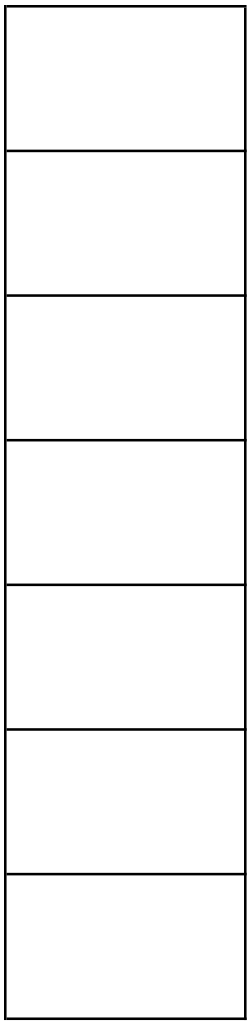








Calender Year : Spring 2016		Components of Re		
		Researcher Evaluation		
Class : 7361		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
Class Title	Class Instructor			
Course Introduction / Anemias – Pathophysiology	Jann			
Anemias – Medicinal Chemistry / Pharmacology	Emmitte			
Anemias - Pharmacotherapy	Jann			
Anemia Case Study	Jann	x	x	
Coagulation Disorders - Pathophysiology	Trinkman, H.			

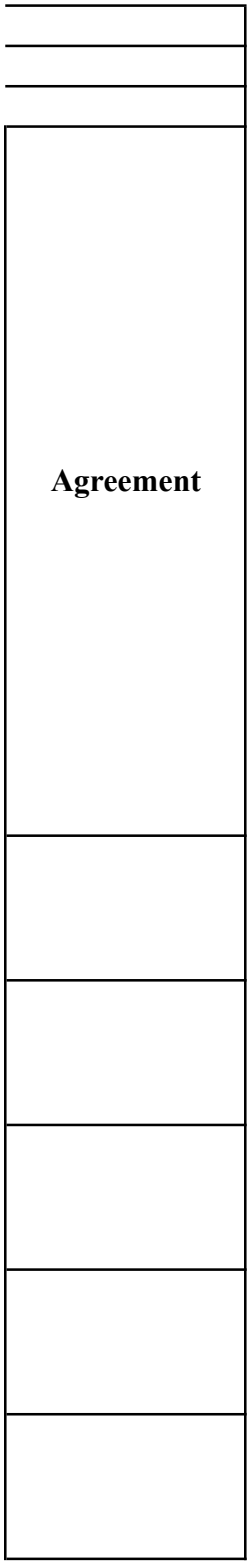
Coagulation Disorders– Medicinal Chemistry / Pharmacology	Wang			
Coagulation Disorders – Pharmacotherapy	Trinkman, H.			
Sickle Cell Disease - Pathophysiology and Pharmacotherapy	Wendel, G.			
Introduction to Oncology-Pathophysiology	Jann			
Introduction to Oncology-Pathophysiology	Jann			
DNA-damaging Agents and Other Cytotoxics: Medicinal Chemistry and Pharmacology	Emmitte			
DNA-damaging Agents and Other Cytotoxics: Medicinal Chemistry and Pharmacology	Emmitte			
Antimetabolites : Medicinal Chemistry and Pharmacology	Emmitte			
Microtubule Agents and Cell Cycle Inhibitors: Medicinal Chemistry and Pharmacology	Emmitte			
Hormonal Therapies: Medicinal Chemistry and Pharmacology	Wang			
Kinase Inhibitors and Other Targeted Therapies - Medicinal Chemistry and Pharmacology	Emmitte			

Kinase Inhibitors and Other Targeted Therapies - Medicinal Chemistry and Pharmacology	Emmitte			
Biologics – Medicinal Chemistry and Pharmacology	Wang			
Lung: Pathophysiology	Grimsley, A.			
Lung: Pharmacotherapy	Grimsley, A.			
Colon Cancer: Pathophysiology	Grimsley, A.			
Colon Cancer: Pharmacotherapy	Grimsley, A.			
Breast Cancer: Pathophysiology	Grimsley, A.			
Breast Cancer: Pharmacotherapy	Grimsley, A.			
Prostate Cancer: Pathophysiology	Jann			
Prostate Cancer: Pharmacotherapy	Jann			
Ovarian Cancer: Pathophysiology and Pharmacotherapy	Jann			

Melanoma: Pathophysiology and Pharmacotherapy	Jann			
Pediatric Oncology	Trinkman, H.			
Pediatric Oncology	Trinkman, H.			
Acute Leukemia: Pathophysiology and Pharmacotherapy	Jann			
Acute Leukemia: Pathophysiology and Pharmacotherapy	Jann			
Chronic Leukemia: Pathophysiology and Pharmacotherapy	Jann			
Lymphoma: Pathophysiology and Pharmacotherapy	Jann			
Review Session	Jann			
Multiple Myeloma: Pathophysiology and Pharmacotherapy	Desai, R.			
Myelodysplastic Syndromes: Pathophysiology and Pharmacotherapy	Desai, R.			
Solid Organ Transplant: Pharmacotherapy	Sam,T/ Rago, J			

Solid Organ Transplant: Pharmacotherapy	Sam,T/ Rago, J			
Solid Organ Transplant: Pharmacotherapy – Cases	Jann			
Stem Cell Transplant: Pathophysiology / Pharmacotherapy	Horowitz			
Stem Cell Transplant: Rejection and GVHD	Horowitz			
Supportive Care for Myelosuppression: Pharmacology and Pharmacotherapy	Nguyen, K			
Supportive Care for Myelosuppression: Pharmacology and Pharmacotherapy	Nguyen, K			
Supportive Care for Mucositis: Pharmacology and Pharmacotherapy	Nguyen, K			
Supportive Care for CINV: Pharmacology and Pharmacotherapy	Nguyen, K			

esearch Design According to ACPE 2016 Standards				
	4th Pharmacy Evalution			
Evaluate the reliability of the conclusions of published research studies	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**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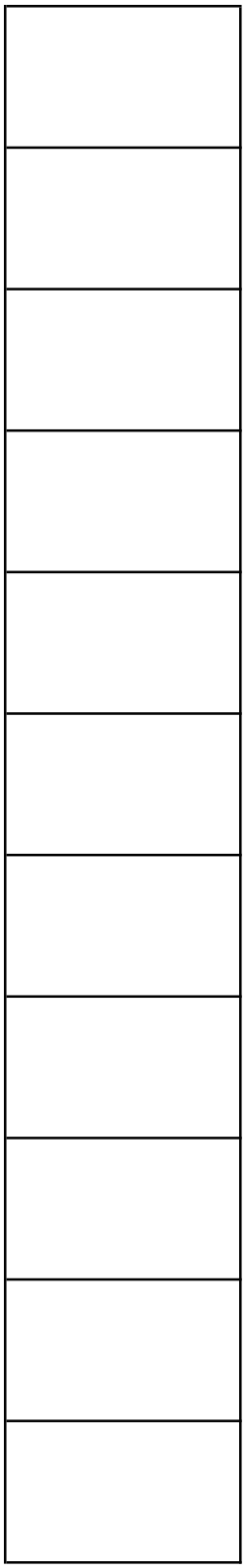
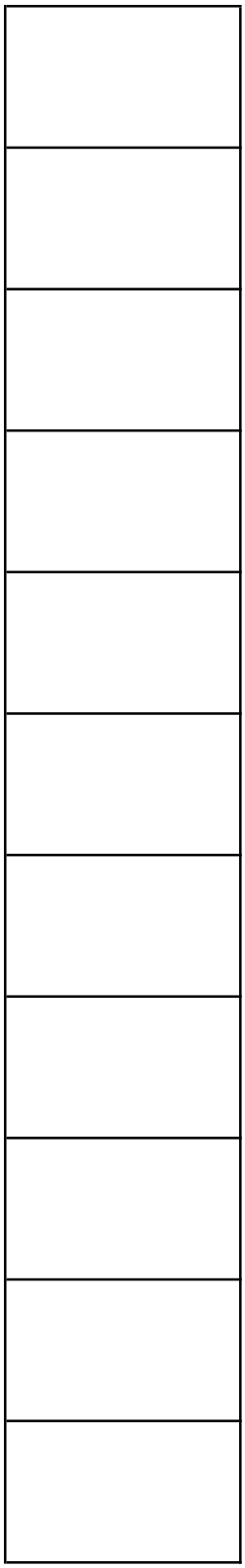
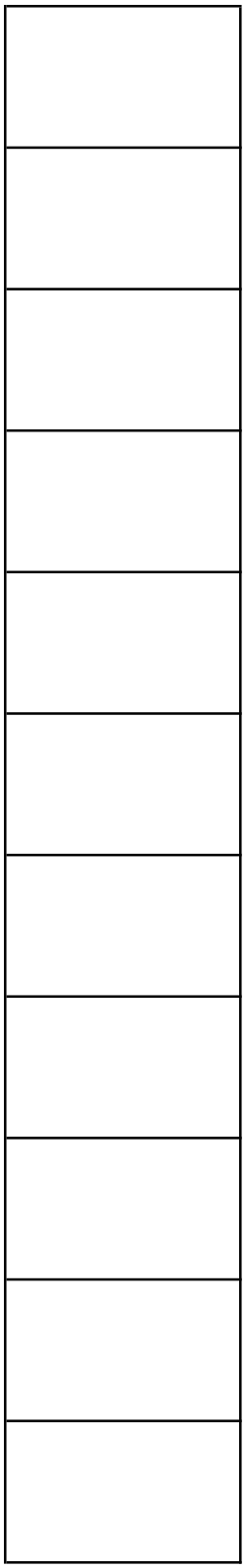
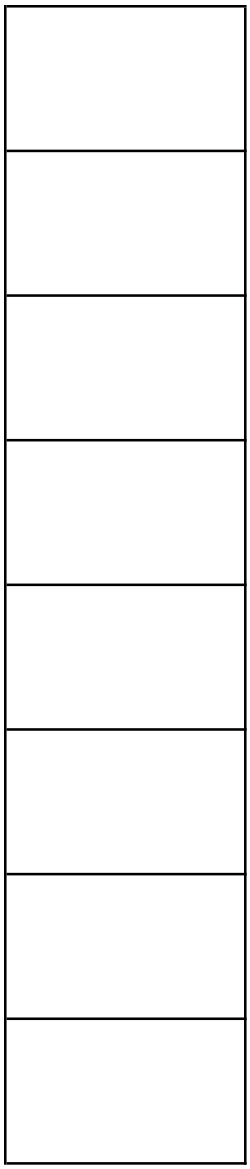








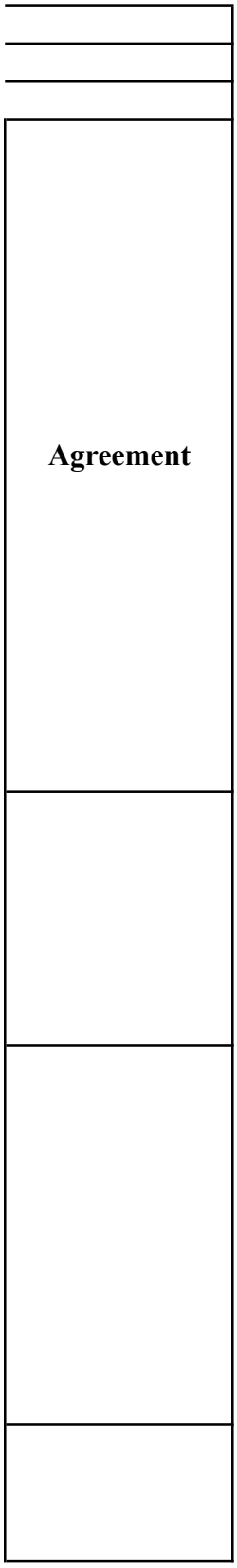
Calender Year : Spring 2016		Components of Re		
		Researcher Evaluation		
Class : 7365		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
Class Title	Class Instructor			
Course orientation: introduction to textbook, syllabus, & class procedures; Introduction to MPJE exam & introduction to the law and civil liability	Penzak / Cacciatore			
Federal Food, Drug and Cosmetic Act (FDCA); Medical Device Act; Hazardous Substance Act; Poison Prevention Packaging Act; Postal Regulations; Dietary Supplement Regulations; Alcohol Regulations.	Penzak/Sharma			
Federal (FCSA) and Texas (TCSA) Controlled Substances Act	Derek Davis			

Texas Dangerous Drug Act and Miscellaneous Texas Laws; Pages	Derek Davis			
Texas Pharmacy Act and Rules	Brinkley			
Texas Pharmacy Act and Rules	Brinkley			
Texas Pharmacy Act and Rules (continued); Misc. Texas Pharmacy Rules	E. George			
Complaints, Inspections and Disciplinary Actions	Derek Davis			
Class A Pharmacies	E. George & K. Ubina			
Non-Sterile and Sterile Compounding Rules	Randy Martin			
Class C Pharmacies	Randy Martin			
Class B, D. E, F, G, and H Pharmacies	Derek Davis			
Case studies & ethical considerations	Roy Martin	x	x	x
Case studies & ethical considerations	Derek Davis	x	x	x

Pre-exam review	Penzak			

esearch Design According to ACPE 2016 Standards				
	4th Pharmacy Evalution			
Evaluate the reliability of the conclusions of published research studies	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**

x				
x				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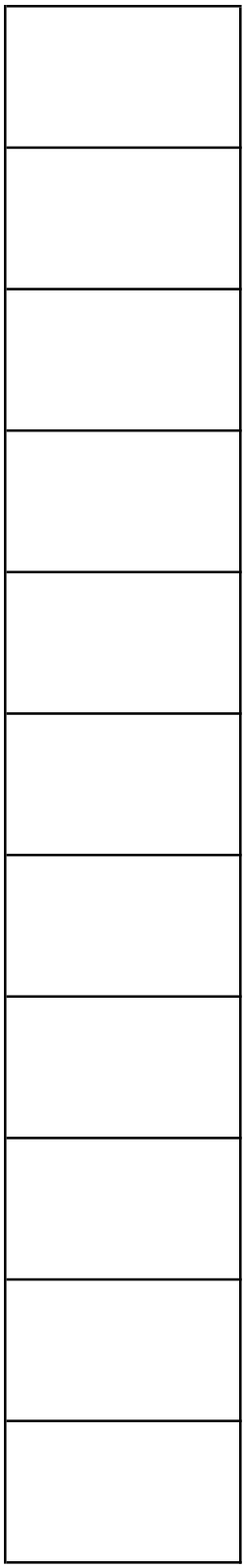


Calender Year : Fall 2013		Co Researcher	
Class : 7411		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**
Class Title	Class Instructor		
Homeostasis & Cell Physiology	Pang		
Plasma Membrane, Movement of Molecules	Pang		
Membrane Potentials & Action Potentials	Pang		
Muscle Physiology: Skeletal Muscle	Pang		
Muscle Physiology: Smooth Muscle	Pang		
Cardiac Physiology: Cardiac Muscle & Pump Function	Wu		
Cardiac Physiology: Rhythmic Excitation & Conductivity	Wu		

Cardiac Physiology: Cardiac Electrophysiology & ECG	Wu		
Circulation: Vessels & Biophysics	Wu		
Circulation: Regulation	Wu		
Blood Cell Physiology & Hematopoiesis Circulation: Major Disorders	Wu		
Neurophysiology: Neurons, Synapses, Neurotransmitters & Sensory Receptors	Ellis		
Neurophysiology: Somatic Sensations	Ellis		
Neurophysiology: Special Senses	Ellis		
Neurophysiology: Control of Motor Function	Ellis		
Neurophysiology: Learning, Memory, Behavioral & Motivational Mechanisms	Ellis		
Neurophysiology: Electrical Activity of the Brain & Autonomic Nervous System	Ellis		
Neurophysiology: Autonomic Nervous System, CSF & BBB	Ellis		

Endocrine Physiology: Pituitary Hormones	Pang		
Endocrine Physiology: Insulin, Glucagon, Diabetes	Pang		
Respiratory Physiology	Wu		
Urinary Physiology & Acid-Base Regulation Endocrine Physiology: Adrenocortical Hormones, Thyroid Hormones & Others	Wu		
GI Physiology: Motility, Propulsion and Mixing of Food	Ellis		
GI Physiology: Secretion, Digestion, Absorption & Disorders	Ellis		
Endocrine Physiology: Sex Hormones	Pang		
Endocrine Physiology: Adrenocortical Hormones, Thyroid Hormones & Others	Pang		

ɔmponents of Research Design According to ACPE 2016 Standards

Evaluation		Pharmacy Student Evalution		
Evaluate the validity of the conclusions of published research studies	**Evaluate the reliability of the conclusions of published research studies**	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**

Evaluate the reliability of the conclusions of published research studies	**Agreement**

Calender Year : Fall 2013		Cc Researcher	
Class : 7412		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**
Class Title	Class Instructor		
Metabolic Fuels & Dietary Components+ Fed & Fasting States	Jacobson		
Water, Acids, Bases & Buffers & Structures of Major Compounds	Jacobson		
Structures of Major Compounds + Amino Acids in Proteins	Jacobson		
Structure-Function Relationships in Proteins + Enzymes as Catalysts	Jacobson		
Enzymes as catalysts + Regulation of Enzymes	Jacobson		

Relationship between Cell Bio and Biochem	Jacobson		
Cell Signaling by Chemical Messengers	Jacobson		
Cellular Bioenergetics: ATP and O2	Cheng		
Tricarboxylic Acid Cycle	Cheng		
Oxidative Phos and Mitochondrial Function	Cheng		
Generation of ATP from Glucose: Glycolysis	Cheng		
Oxidation of Fatty Acids & Ketone Bodies	Cheng		
Oxygen Toxicity & Free Radical Injury	Cheng		
Metabolism of Ethanol	Cheng		
Basic Concepts in the Reg of Fuel Metabolism	Jacobson		
Digestion, Absorption& Transport of Carbs	Jacobson		

Formation and Degradation of Glycogen	Jacobson		
Pathways of Sugar Metabolism	Jacobson		
Gluconeogenesis & Blood Glucose Levels	Jacobson		
Digestion and Transport of Lipids + Fatty Acids, Fats & Membrane Lipids	Lacko		
Cholesterol Metabolism & Fate	Lacko		
Metabolism of Eicosanoids	Lacko		
Integration of Carbo and Lipid Metabolism	Lacko		
Protein Digestion & Amino Acid Absorption + Fate of Amino Acid Nitrogen: Urea Cycle	Cheng		
Synthesis & Degradation of Amino Acids	Cheng		
Purine & Pyrimidine Metabolism + Inter-tissue Relationships	Cheng		

omponents of Research Design According to ACPE 2016 Standards

Evaluation		Pharmacy Student Evalution		
Evaluate the validity of the conclusions of published research studies	**Evaluate the reliability of the conclusions of published research studies**	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**

Evaluate the reliability of the conclusions of published research studies	**Agreement**

Calender Year : Spring 2015		Components of Re		
		Researcher Evaluation		
Class : 7442		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
Class Title	Class Instructor			
Course Introduction / Pathophysiology of CV system	Bullock			
Cardiac Assessment	Bullock			
ACE-I/ARB/Renin Inhibitor: Medicinal Chemistry	Wang			
Calcium Channel Blockers: Medicinal Chemistry	Wang			
ACE-I/ARB/Renin Inhibitor: Pharmacology	Wu			

Calcium Channel Blockers: Pharmacology	Wu			
α-and β-adrenergic Agents: Medicinal Chemistry	Wang			
α-and β-adrenergic Agents: Pharmacology	Wu			
Hypertension Therapeutics	Elrod			
Hypertension Therapeutics, cont.	Elrod			
Hypertension Therapeutics, cont.	Elrod			
Hypertensive Crisis and Emergency	Elrod			
EKG Review	Wu			
Antiarrhythmics: Pharmacology	Yan			
Antiarrhythmics: Pharmacology	Yan			
Pathophysiology of Arrhythmias	Schulz			

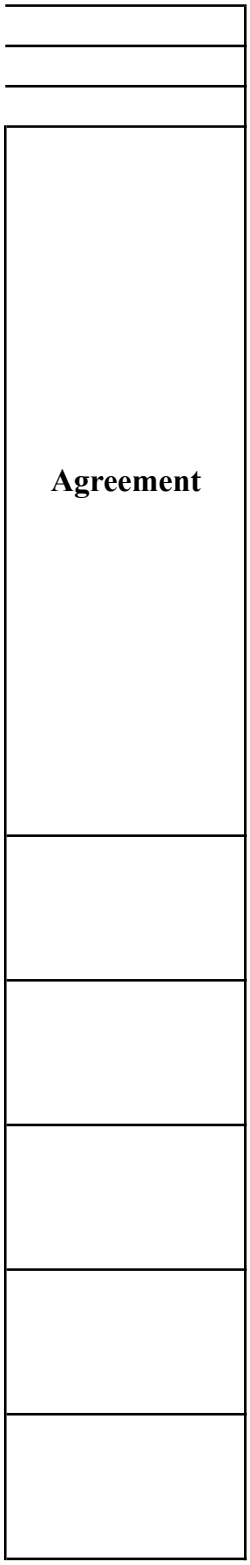
Antiarrhythmics: Medicinal Chemisry	Cheng			
Arrhythmia Therapeutics	Ray			
Arrhythmia Therapeutics	Ray			
Arrhythmia Therapeutics	Ray			
Pathophysiology of Atherosclerosis and Risk Factors	Jacobson			
Pharmacology of Dyslipidemia	Jacobson			
Dyslipidemia Therapeutics	Payne			
Dyslipidemia Therapeutics	Payne			
Peripheral Arterial Disease	Bullock			
Pathophysiology of Heart Failure	Tatachar			
Antianginals and Vasodilators: Pharmacology	Yan			

Antianginals and Vasodilators: Pharmacology	Yan			
Antianginals and Vasodilators: Pharmacology	Cheng			
Cardiac Stimulants and Inotropes: Pharmacology	Yan			
Cardiac Stimulants and Inotropes: Medicinal Chemistry	Cheng			
Heart Failure Therapeutics	Tatachar			
Heart Failure Therapeutics	Tatachar			
Acute Decompensated Heart Failure	Gibson			
Pathophysiology of Ischemic Heart Disease	Hammond			
Antiplatelet and Fibrinolytic Therapy: Medicinal Chemistry	Wang			
Antiplatelet and Fibrinolytic Therapy: Pharmacology	Yan			
Acute Coronary Syndrome	Gibson			

Acute Coronary Syndrome	Gibson			
Ischemic Heart Disease Therapeutics	Gibson			
Ischemic Heart Disease Therapeutics	Gibson			
Pathophysiology of Blood Clotting	Bullock			
Anticoagulants: Medicinal Chemistry	Wang			
Anticoagulants: Pharmacology	Yan			
Anticoagulants: Pharmacology	Yan			
Thromboembolic Disorders Therapeutics	Bullock			
Thromboembolic Disorders Therapeutics	Bullock			
Thromboembolic Disorders Therapeutics	Bullock			
Pathophysiology and Evaluation of Cerebrovascular Disease	Bullock			

Acute Treatment of Stroke	Gibson			
Primary and Secondary Prevention of Stroke	Bullock			
Management of Bleeding	Bullock			
Management of Bleeding	Bullock			

esearch Design According to ACPE 2016 Standards				
	Pharmacy Student Evalution			
Evaluate the reliability of the conclusions of published research studies	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**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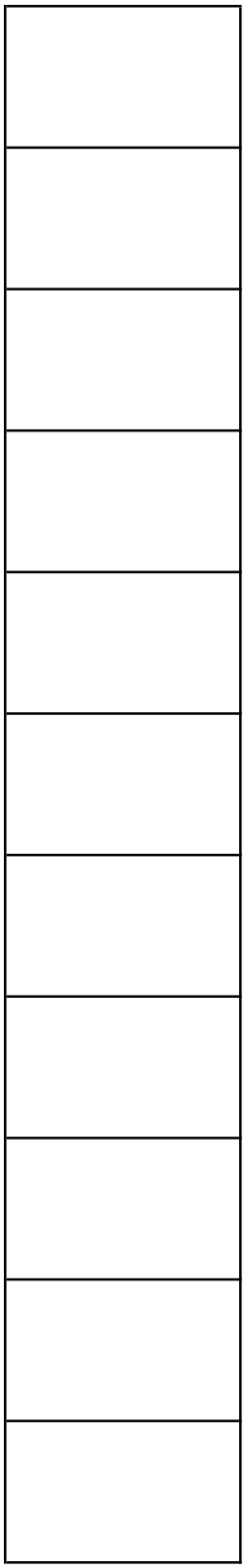
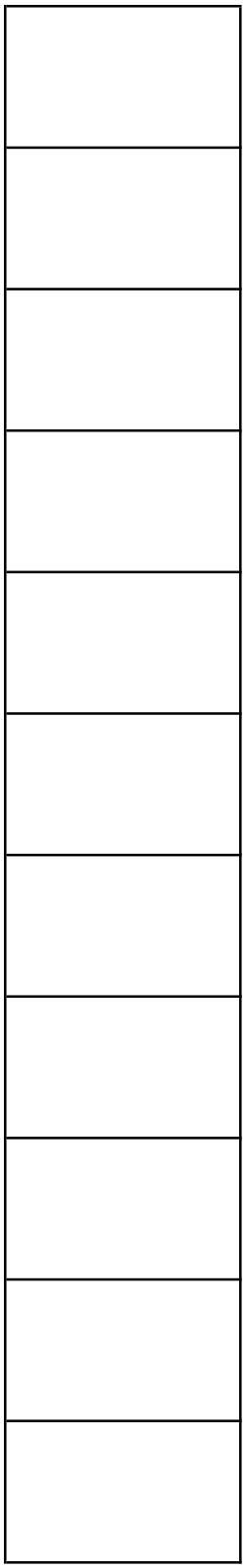
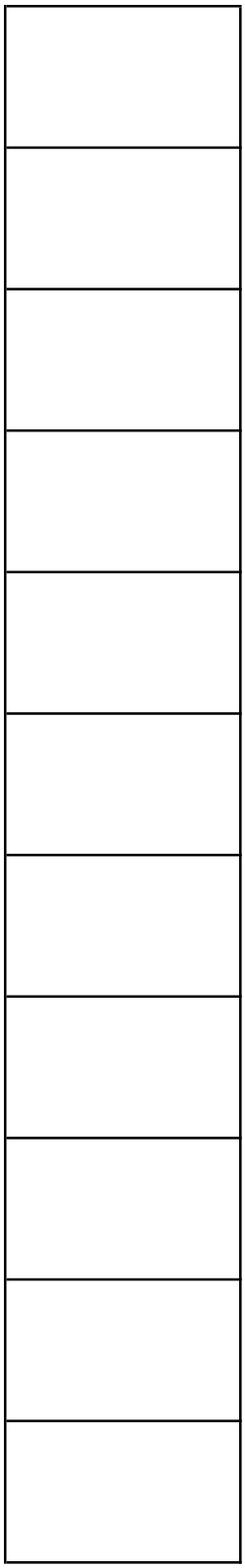
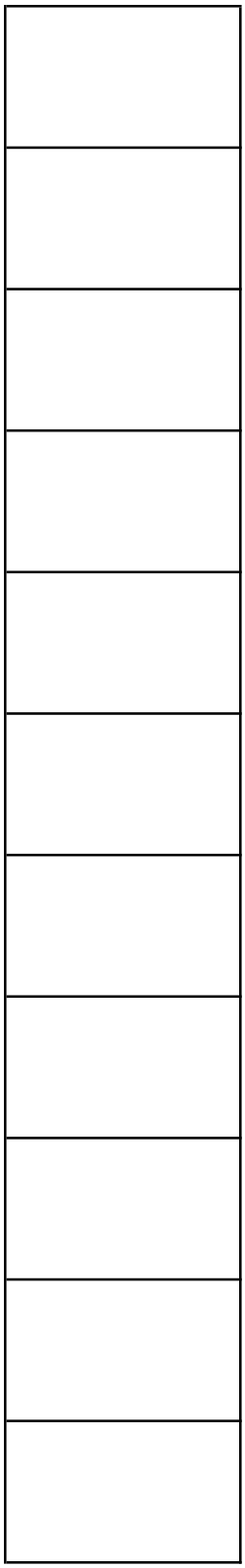
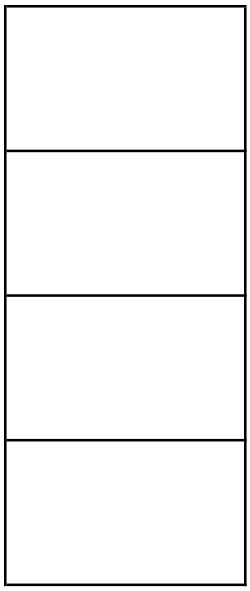










Calender Year : Fall 2015		Components of Re		
		Researcher Evaluation		
Class : 7451		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
Class Title	Class Instructor			
Introduction to module	Clay			
Infectious Diseases Resources	Kenny			
Review of infectious disease principles	Clay			
Review of key pharmacokinetic principles	Clay			
Review of laboratory tests to direct Antimicrobial Therapy	Sanders			

Clinically encountered antibiotic resistance	Sanders			
Antibiogram 101: A Primer	Sanders			
A Pharmacist's Approach to Antimicrobial Regimen Selection	Sanders			
Skin and soft tissue infections	Gaviola			
Bone and Joint Infections / (including diabetic foot ulcers)	Howard			
Bacteremia	Veyherden			
SBAR & Team STEPPS approach to presenting clinical cases	Gaviola & Clay			
Tuberculosis (as a public health issue)	Carlson			
Anti-tubercle agents	Clay			
Tuberculosis / (pulmonary & disseminated)	Clay			
Tuberculosis / (multidrug resistant and PPD testing)	Clay			

Respiratory tract infection: upper / (community acquired, incl. rhinosinusitis)	Tatachar			
Respiratory tract infection: upper / (health-system acquired)	Hammond			
Respiratory tract infection: lower / (ventilator / device, aspiration)	Hammond			
Respiratory tract infection: lower (community acquired); influenza	Hammond			
Inhaled antimicrobial therapies	TBD			
Preventative vaccines and post-exposure immune globulins	Davis			
Influence of ethnicity and religion on the management of infectious diseases	Martin			
Tuberculosis, pneumonia & URIs	Clay & Tatachar			
CNS Infections (incl. meningitis, encephalitis)	Tessier			
Intra-abdominal infections	Azhari			
Endocarditis	Gibson			

Invasive device infections / (including catheter related)	Gibson			
Pelvic Inflammatory Disease	Penzak			
Surgical infection / prophylaxis	Penzak			
Tick-borne & Parasitic infections	Penzak			
Intra-abdominal infections, endocarditis & meningitis	Clay & Gibson			
Gastrointestinal infections / (incl. infectious diarrhea)	Clay			
C. difficile infections & Fecal transplants	Cloud			
UTI: women	Cloud / Thomas			
UTI: men & other complications	Cloud / Thomas			
STD (adult)	Clay			
STD (pediatric)	Ball or Chapman			

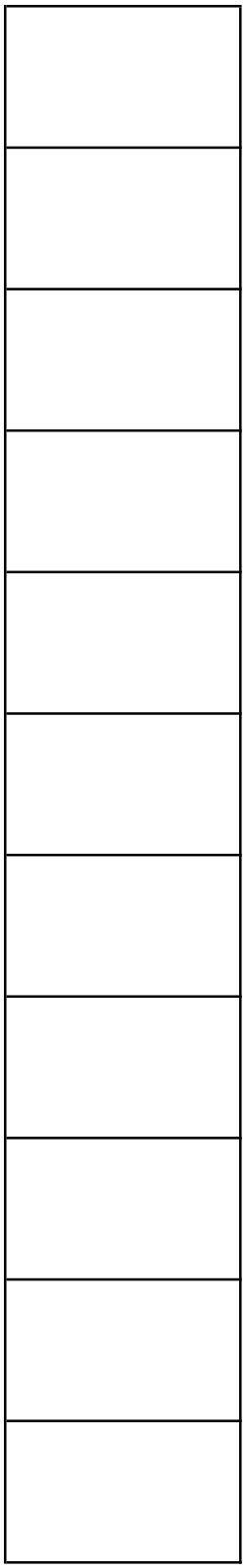
Other GU infections (non-STD)	Clay			
Gastrointestinal infections, STDs	Clay			
Hepatitis B	Clay			
Hepatitis C	Clay			
HIV (Assessment/Treatment - antiretrovirals)	Clay			
Preventing HIV (Pre-exposure prophylaxis, Treatment as Prevention, Peri-natal, Sexual/Occupational post-exposure prophylaxis)	Clay			
HIV (Management of primary care issues - DM)	Elrod			
HIV (Management of primary care issues - CV 1)	Elrod			
HIV (Management of primary care issues - CV 2)	Elrod			
Hepatitis B, C & HIV (Treatment)	Clay			
HIV (Management of primary care issues - Asthma & others)	Elrod			

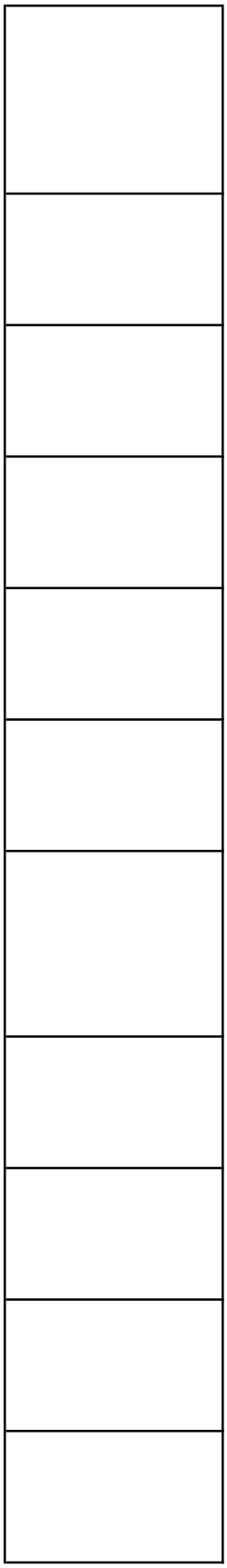
HIV (Opportunistic Infections - prophylaxis)	Clay			
HIV (Opportunistic Infections - treatment)	Clay			
HIV (Opportunistic Infections – treatment - II)	Clay			
Pharmacist role in Infection Control	Jowitt			
Pharmacist role in biologic terrorism	D'Agostino			
Pharmacist role in public health	TBD			
Pharmacist role in public health response to emerging infections and pandemics	TBD			
Pharmacist role in improving the health literacy of infectious disease therapies for community and healthcare providers	Carlson			
Fungal infections: Antifungal pharmacology	Clay			
Fungal infections: systemic	Tessier			

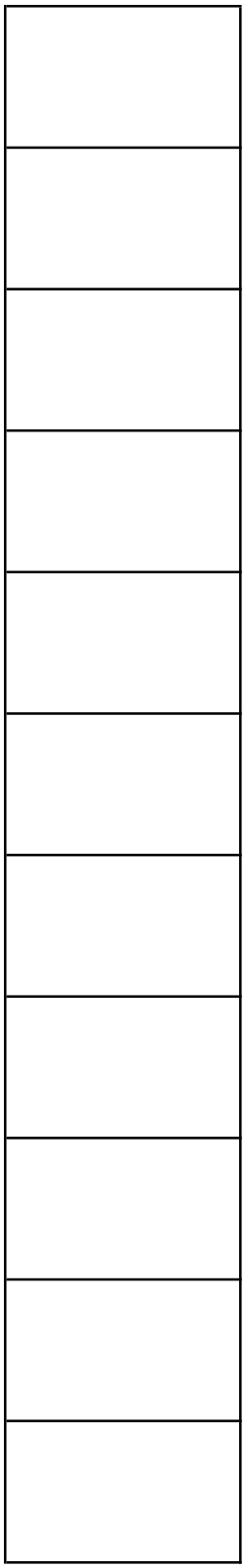
HIV (Primary Care (cont'd) & OI)	Elrod & Clay			
Naturopathic / Alternative treatments for infectious diseases	TBD			
Role of the infectious disease specialist pharmacist	Veyherden			
Infections subsequent to combat and natural disasters	TBD			
Ophthalmologic infections	TBD			
Invasive device infection considerations	Hammond			
Antimicrobial Stewardship	Hammond			
Considerations for infections in immune compromised host	Clay			

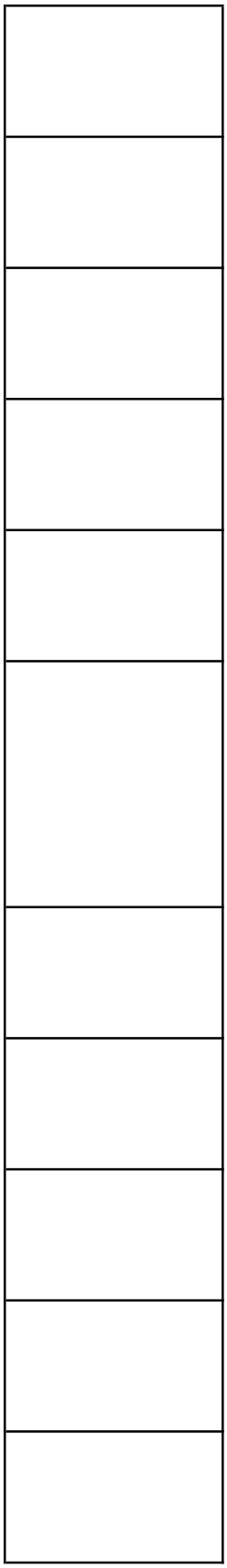
esearch Design According to ACPE 2016 Standards				
	Pharmacy Student Evalution			
Evaluate the reliability of the conclusions of published research studies	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**

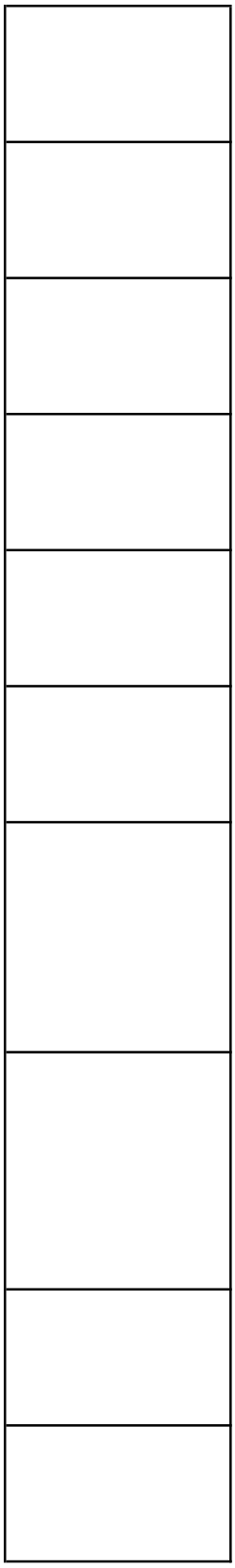
Agreement

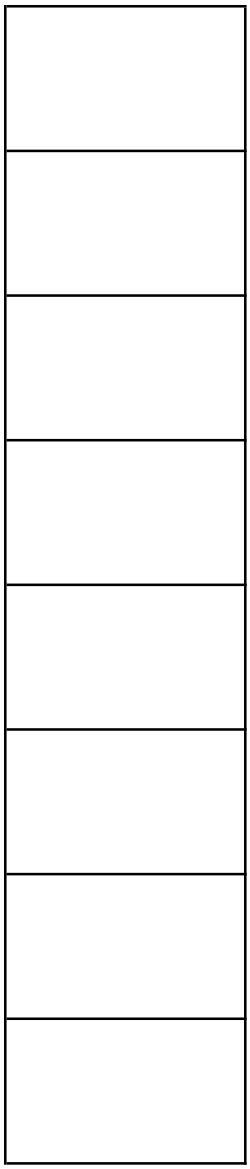












Calender Year : Fall 2014		Components of Re		
		Researcher Evaluation		
Class : 7535		**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**
Class Title	Class Instructor			
Course Introduction + Review of Laboratory Tests for + Diagnosis and Monitoring	Gibson			
Total Body Fluid Distribution + Clinical Evaluation of Fluid Balance	Gibson			
Osmolality and Pharmacology of Intravenous Fluids	Yan			
Fluid and Volume Management	Current			
Hyponatremia/Hypo-osmolal states	Current			

Hypernatremia/Hyperosmolal states + Renal regulation of water (vasopressin)	Current			
Hypokalemia	Ray			
Hyperkalemia	Ray			
Magnesium Homeostasis and Management	Ray			
Calcium and Phosphorus Homeostasis	Gibson			
Calcium and Phosphorus Homeostasis: Pharmacology	Yan			
Therapy of Calcium and Phosphorus Disorders	Gibson			
Interprofessional Education Activity				
Interprofessional Education Activity				
Pathophysiology of Acid-Base Disorders	Current			

Eval/Mgt of Acid-Base Disorders	Current			
Review of Renal Anatomy + Pathophysiology of Renal Disease	Gibson			
Assessment and Measurement of Renal Function	Ramanathan			
Assessment and Measurement of Renal Function	Ramanathan			
Diuretics: Medicinal Chemistry	Jacobson			
Diuretics: Pharmacology	Jacobson			
Pathophysiology of Acute Kidney Injury	Gibson			
Therapy of Acute Kidney Injury	Gibson			
Chronic Kidney Disease: Diagnosis, Evaluation, and Risk Factors	Tatachar			
Pathophysiology and Pharmacology of Chronic Kidney Disease	Yan/Tatachar			

Chronic Kidney Disease	Tatachar			
Chronic Kidney Disease	Tatachar			
Drug-Induced Kidney Disease	Tatachar			
Drug-Induced Kidney Disease	Tatachar			
Altered PK/PD in Renal Dysfunction	Ramanathan			
Drug Dosing in Renal Dysfunction	Ramanathan			
Drug Dosing in Renal Dysfunction	Ramanathan			
Nephrotoxins - Pharmacology	Yan			
Nephrotoxins	Ramanathan			
Dialysis and Continuous Renal Replacement	Current			

Drug Dosing in Dialysis and Continuous Renal Replacement	Current			
Management of Dialysis Complications	Current			
Anemias: Pathophysiology	Ray			
Anemias: Pharmacology	Yan			
Anemias: Pharmacotherapy	Ray			
Anemias: Pharmacotherapy	Ray			
Renal Calculi and Cysts	Gibson			
Glomerulonephritis	Gibson			
Nephritic/Nephrotic Syndrome	Gibson			
Renovascular Disorders	Gibson			

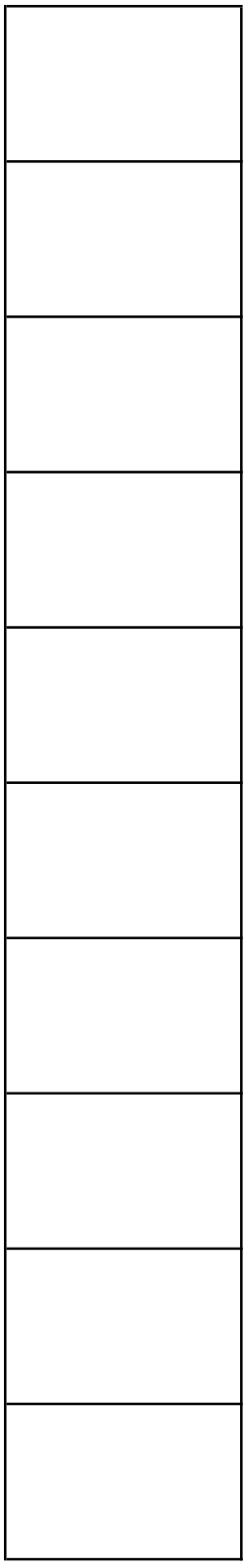
Altered PK/PD – Renal Dysfunction Drug Dosing Active Learning Session	Ramanathan			
Altered PK/PD – Renal Dysfunction Drug Dosing Active Learning Session	Ramanathan			
Structure and Pathophysiology of Skin, Hair, and Nails	Elrod			
Pathophysiology of Allergic Reactions	Elrod			
Antihistamines: Medicinal Chemistry	Cheng			
Antihistamines: Pharmacology	Machu			
Medicinal Chemistry and Phamacology of the Antiallergics	Yan			
Glucocorticoids (Oral, Topical, and Intranasal): Medicinal Chemistry	Cheng			
Glucocorticoids (Oral, Topical, and Intranasal): Medicinal Chemistry	Cheng			
Glucocorticoids (Oral, Topical, and Intranasal): Pharmacology	Machu			

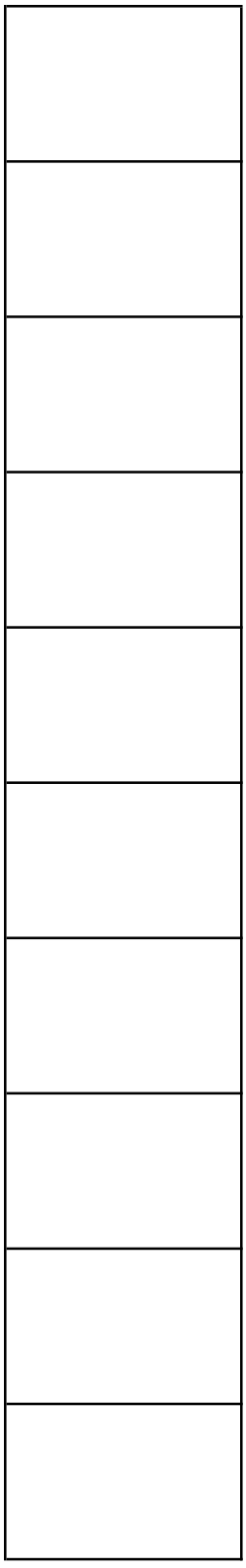
Glucocorticoids (Oral, Topical, and Intranasal): Pharmacology	Machu			
Allergic Rhinitis	Elrod			
Drug Allergy and Hypersensitivity	Elrod			
Anaphylaxis, Angioedema, Urticaria	Elrod			
Acne and Rosacea	Elrod			
Psoriasis	Elrod			
Eczema and Dermatitis	Elrod			
Cutaneous Drug Reactions	Payne			
Medicinal Chemistry of Ocular Agents	Pang			
Pharmacology of Ocular Agents	Pang			

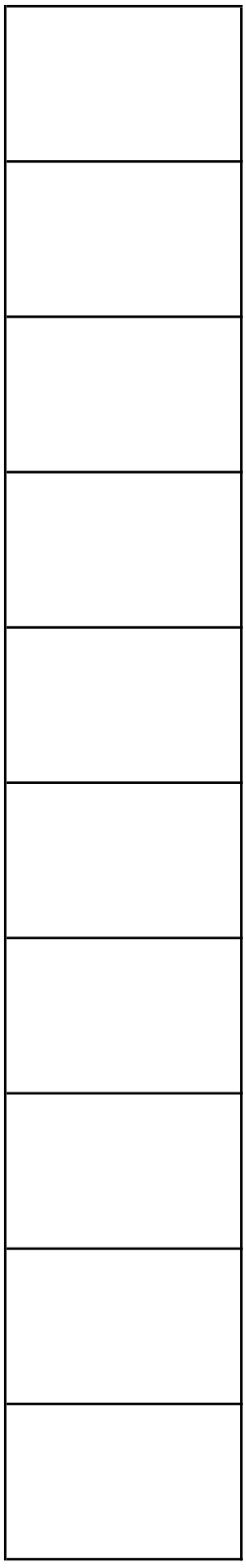
Glaucoma and Cataracts	Payne			
Disorders of the Cornea, Uvea, and Retina	Payne			
Drug-Induced Eye Disorders	Tatachar			
Dizziness, Vertigo, and Other Ear Disorders	Tatachar			
Drug-Induced Ototoxicity	Payne			

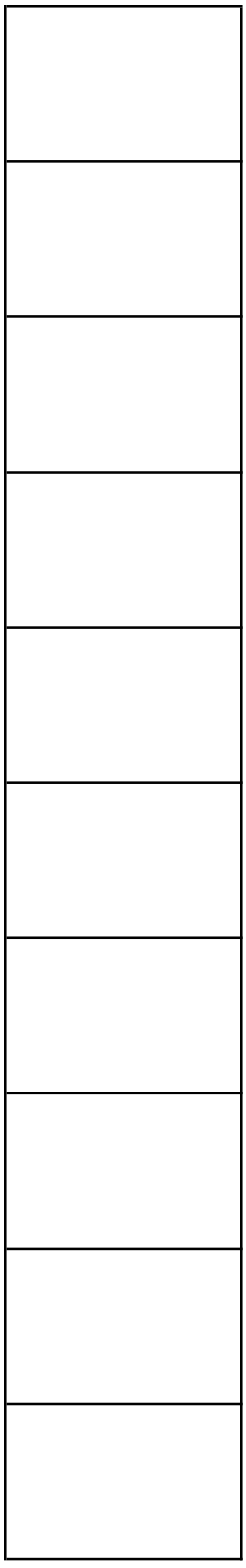
esearch Design According to ACPE 2016 Standards				
	Pharmacy Student Evalution			
Evaluate the reliability of the conclusions of published research studies	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**

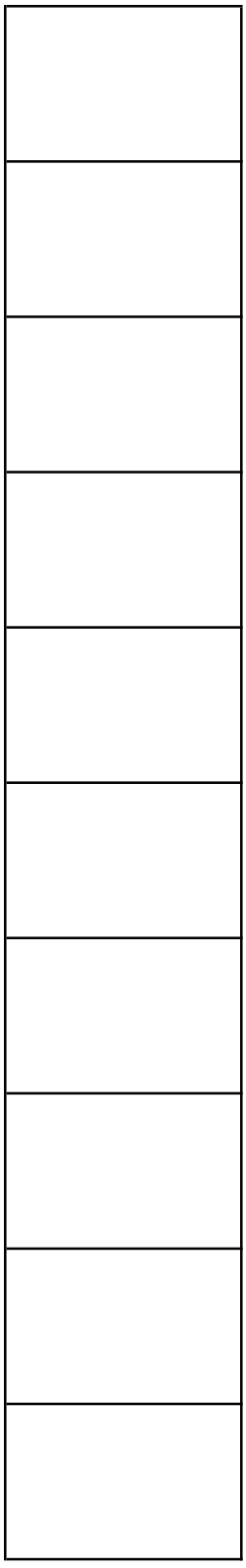
Agreement

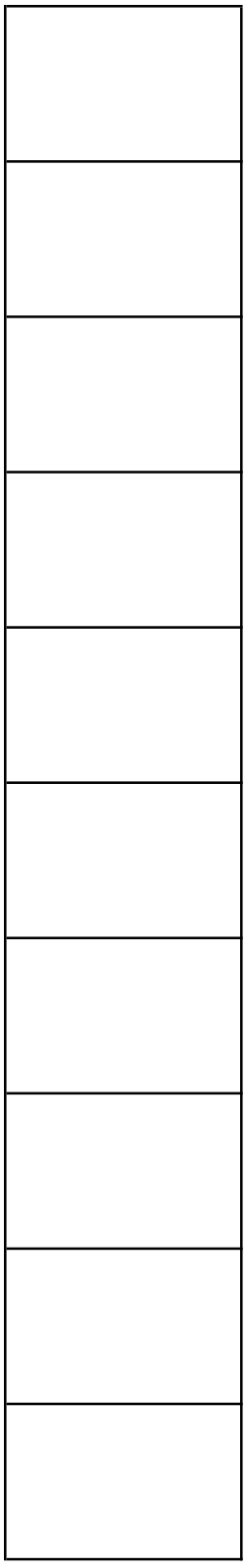


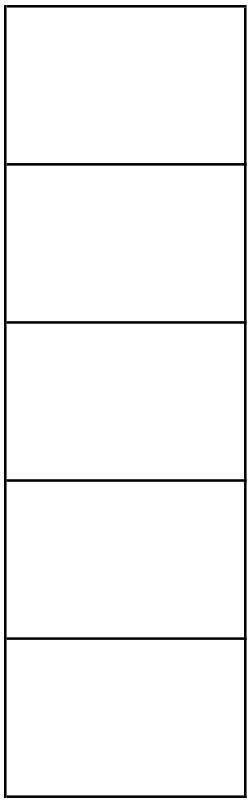












APPENDIX I

SYLLABUS-MAPPING TOOL # 2 DATA

Professional Year 1 Curriculum	Semester 1	7411 (4)	Physiologic Basis for Pharmacotherapy
		7412 (4)	Metabolic Basis for Pharmacotherapy
		7313 (3)	Pharmaceutics 1
		7214 (2)	Pharmacotherapy of Self-Care 1
		7315 (3)	Pharmacy Practice 1: The Profession
		7116 (1)	Clinical Case Discussions 1
		7217 (2)	Pharmacy Practice Skills Lab 1
		mmunizations	
		7110 (1)	IPPE 1
		7321 (3)	Pharmacotherapy of Infectious Disease

	Semester 2	7322 (3)	Pharmacogenetics, Genomics and Personalized Medicine
		7323 (3)	Pharmaceutics 2
		7224 (2)	Pharmacotherapy of Self-Care 2
		7325 (3)	Pharmacy Practice 2: Communications
		7126 (1)	Clinical Case Discussions 2
		7227 (2)	Pharmacy Practice Skills Lab 2
		7120 (1)	IPPE 2
	Summer 1	7229 (2)	IPPE 3 Community Practice (80 hours)
Professional Year 2	Semester 3	7331 (3)	Immune Based Diseases and Therapy
		7232 (2)	Principles of Medicinal Chemistry and Pharmacology
		7534 (5)	Integrated Pharmacotherapy 1: Renal, Eye, Ear, Nose, Throat and Skin
		7335 (3)	Pharmacy Practice 3: Pharmaceutical Policy, Public Health and Pharmacoeconomics
		7136 (1)	Integrated Pharmacy Recitation 1
		7137 (1)	Pharmacy Practice Skills Lab 3
		7130 (1)	IPPE 4

Year 2 Curriculum		7xxx	*Elective
	Semester 4	7341 (3)	Integrated Pharmacotherapy 2: Endocrine, Male/Female Health
		7442 (4)	Integrated Pharmacotherapy 3: Cardiovascular
		7343 (3)	Pharmacokinetics
		7345 (3)	Pharmacy Practice 4: Evidenced Based Practice and Drug Literature Evaluation
		7146 (1)	Integrated Pharmacy Recitation 2
		7147 (1)	Pharmacy Practice Skills Lab 4
		7140 (1)	IPPE 5
		7xxx	*Elective
	Summer 2	7249 (2)	IPPE 6 Institutional Practice (80 hours)
	Semester 5	7451 (4)	Integrated Pharmacotherapy 4: Infectious Disease
		7352 (3)	Integrated Pharmacotherapy 5: Respiratory and Gastro-Intestinal
		7353 (3)	Integrated Pharmacotherapy 6: Neurology, Psychiatry and Pain
		7354 (3)	Optimizing Wellness

Professional Year 3 Curriculum		7355 (3)	Pharmacy Practice 5: Management and Drug Safety
		7156 (1)	Integrated Pharmacy Recitation 3
		7150 (1)	IPPE 7
		7xxx	*Elective
	Semester 6	7361 (3)	Integrated Pharmacotherapy 7: Hematology, Oncology and Transplants
		7262 (2)	Integrated Pharmacotherapy 8: Musculo-Skeletal and Connective Tissue Disorders
		7263 (2)	Integrated Pharmacotherapy 9: Special Populations
		7264 (2)	Integrated Pharmacotherapy 10: Critical Care
		7365 (3)	Pharmacy Practice 6: Law and Ethics
		7166 (1)	Integrated Pharmacy Recitation 4
		7160 (1)	IPPE 8
		7xxx	*Elective
		7681 (6)	APPE Required: Inpatient/Acute Care
		7682 (6)	APPE Required: Community Pharmacy

Professional Year 4 Curriculum	Semester 7 & 8 (Expanded semesters)	7683 (6)	APPE Required: Selective Community or Hospital/Health System Pharmacy
		7684 (6)	APPE Required: Ambulatory Care
		7685 (6)	APPE Required: Hospital or Health System Pharmacy
		7680 (12)	APPE Elective Rotations
Electives Y1-Y3		7100	Advanced Geriattrics Elective
		7200	The Clinical Community Pharmacist
		7202	Independent Topics in Pharmaceutical Sciences
		7203	PharmD Research & Seminar
		7105	Leading Change in Pharmacy
		7170	Essentials of Post-Graduate Training Programs
		7205	Lesbian, Gay Bisexual, and Transgender (LGBT) Health and Practice Issues
		7260	Post-Graduate Preparatory Seminar
		7375	Special Topics In Pharmacy Research

Components of Research Design According to ACPE 2016 Standar					
Researcher Evaluation				Pharmacy Stud	
Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluate the validity of the conclusions of published research studies**	**Evaluate the reliability of the conclusions of published research studies**	**Evaluation of research methods required to conduct valid and reliable studies to test hypotheses or answer research questions**	**Evaluation of protocol design required to conduct valid and reliable studies to test hypotheses or answer research questions**
		x	x		
x	x	x	x		

x	x	x	x		
x	x	x	x		
		x	x		
x	x				
		x	x		
x	x	x	x		

x	x	x	x		
x	x	x	x		
x	x				
x	x				

x	x				
x	x	x	x		

x	x				
x	x	x	x		
x	x	x	x		
x	x	x	x		

·ds	
dent Evalution	

Evaluate the validity of the conclusions of published research studies	Evaluate the reliability of the conclusions of published research studies	Agreement

APPENDIX J

SYLLABUS-MAPPING TOOL # 2 CONDENSED DATA

Professional Year 1 Curriculum	Semester 1	7411 (4)
		7412 (4)
		7313 (3)
		7214 (2)
		7315 (3)
		7116 (1)
		7217 (2)
		mmunizations
		7110 (1)
	Semester 2	7321 (3)
		7322 (3)
		7323 (3)
		7224 (2)
		7325 (3)
		7126 (1)
		7227 (2)
		7120 (1)
	Summer 1	7229 (2)
Professional Year 2 Curriculum	Semester 3	7331 (3)
		7232 (2)
		7534 (5)
		7335 (3)
		7136 (1)
		7137 (1)
		7130 (1)
		7xxx
	Semester 4	7341 (3)
		7442 (4)
		7343 (3)
		7345 (3)
		7146 (1)

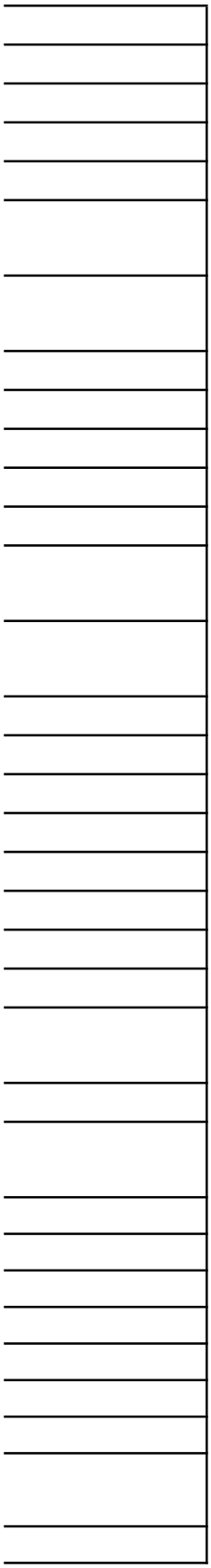
		7147 (1)
		7140 (1)
		7xxx
	Summer 2	7249 (2)
Professional Year 3 Curriculum	Semester 5	7451 (4)
		7352 (3)
		7353 (3)
		7354 (3)
		7355 (3)
		7156 (1)
		7150 (1)
		7xxx
	Semester 6	7361 (3)
		7262 (2)
		7263 (2)
		7264 (2)
		7365 (3)
		7166 (1)
		7160 (1)
		7xxx
Professional Year 4 Curriculum	Semester 7 & 8 (Expanded semesters)	7681 (6)
		7682 (6)
		7683 (6)
		7684 (6)
		7685 (6)
		7680 (12)
Electives Y1-Y3		7100
		7200
		7202
		7203
		7105
		7170
		7205
		7260

	Potential Oppurtunity for Studen in Research Design at UN
Physiologic Basis for Pharmacotherapy	
Metabolic Basis for Pharmacotherapy	
Pharmaceutics 1	
Pharmacotherapy of Self-Care 1	
Pharmacy Practice 1: The Profession	x
Clinical Case Discussions 1	x
Pharmacy Practice Skills Lab 1	
s	
IPPE 1	
Pharmacotherapy of Infectious Disease	
Pharmacogenetics, Genomics and Personalized Medicine	x
Pharmaceutics 2	x
Pharmacotherapy of Self-Care 2	
Pharmacy Practice 2: Communications	x
Clinical Case Discussions 2	x
Pharmacy Practice Skills Lab 2	
IPPE 2	
IPPE 3 Community Practice (80 hours)	
Immune Based Diseases and Therapy	
Principles of Medicinal Chemistry and Pharmacology	
Integrated Pharmacotherapy 1: Renal, Eye, Ear, Nose, Throat and Skin	
Pharmacy Practice 3: Pharmaceutical Policy, Public Health and Pharmacoeconomics	x
Integrated Pharmacy Recitation 1	
Pharmacy Practice Skills Lab 3	
IPPE 4	
*Elective	
Integrated Pharmacotherapy 2: Endocrine, Male/Female Health	
Integrated Pharmacotherapy 3: Cardiovascular	
Pharmacokinetics	
Pharmacy Practice 4: Evidenced Based Practice and Drug Literature Evaluation	x
Integrated Pharmacy Recitation 2	

Pharmacy Practice Skills Lab 4	x
IPPE 5	
*Elective	
IPPE 6 Institutional Practice (80 hours)	
Integrated Pharmacotherapy 4: Infectious Disease	
Integrated Pharmacotherapy 5: Respiratory and Gastro-Intestinal	
Integrated Pharmacotherapy 6: Neurology, Psychiatry and Pain	x
Optimizing Wellness	x
Pharmacy Practice 5: Management and Drug Safety	
Integrated Pharmacy Recitation 3	
IPPE 7	
*Elective	
Integrated Pharmacotherapy 7: Hematology, Oncology and Transplants	x
Integrated Pharmacotherapy 8: Musculo-Skeletal and Connective Tissue Disorders	
Integrated Pharmacotherapy 9: Special Populations	
Integrated Pharmacotherapy 10: Critical Care	
Pharmacy Practice 6: Law and Ethics	x
Integrated Pharmacy Recitation 4	
IPPE 8	
*Elective	
APPE Required: Inpatient/Acute Care	
APPE Required: Community Pharmacy	
APPE Required: Selective Community or Hospital/Health System Pharmacy	
APPE Required: Ambulatory Care	
APPE Required: Hospital or Health System Pharmacy	
APPE Elective Rotations	x
Advanced Geriattrics Elective	
The Clinical Community Pharmacist	
Independent Topics in Pharmaceutical Sciences	x
PharmD Research & Seminar	x
Leading Change in Pharmacy	
Essentials of Post-Graduate Training Programs	
Lesbian, Gay Bisexual, and Transgender (LGBT) Health and Practice Issues	
Post-Graduate Preparatory Seminar	

Special Topics In Pharmacy Research	x

t Engagement
NTSCP



APPENDIX K

INTERNSHIP JOURNAL

DAILY INTERNSHIP JOURNAL

UNTHSC College of Pharmacy

Mentor: *Dr. Patrick G. Clay, PharmD, AAHIVP, CPI, CCTI, FCCP*

In Partial Fulfillment of the Requirements
For the Degree of
MASTERS OF SCIENCE IN CLINICAL RESEARCH MANAGEMENT

By
Karthikeyan Baskaran
Fort Worth, Texas
July 2016

Initial: DS PC

1. **05/31/ 2016:** Today was the first day of my internship. We had a meeting at 9pm orientation with Dr. Clay and the 4th year pharmacy students who were taking a summer class with him. During orientation we were introduced to the project Dr. Clay is currently working with HealthHIV, CDC, and Walgreens. We were also introduced to the database cleanup associated with that project. During the afternoon we met the research assistants from the College of Public Health and assisted with the creation and checking of MODE forms.

2. **06/01/ 2016:** This morning, I met with the research assistants from School of Public Health and pharmacy students. We continued working creating and checking the accuracies of the MODE forms.

    a. **MODE FORMS ->** MODE forms are excel files that have been automatically generated. A baseline database has been created from the data sent from the clinics. Unfortunately, not all of the data fields have valid values or accepted values. MODE forms are created to send back to the clinic. The clinic will address the query and provide the correct value that should be placed in the database

3. **06/02/ 2016:** I continued to work with Upendra and Apeksa (Research Assistants from College of Public health). We continued to finalize the data flag MODE forms, which needed to be distributed in the next couple days. I sent out administrative emails to schedule the meeting with all the members of the advising committee. The agenda for the meeting was to discuss potential projects for me to pursue. I had lunch with all of the Research Assistants on the 7th floor break room. After lunch the Research Assistants and I met with Dr. Clay in his office for conference call with the CDC group. The conference call was used to make sure everyone was same page and prepare for the release of the MODE forms.

4. **06/03/ 2016:** The date and time (June 10th @ 1030am) was scheduled for the CRM committee meeting. Michael from HealthHIV setup used HealthHIV's online platform to setup a webinar. I was in the conference room 409, but did not realize that the members of UNTHSC were meeting in Dr. Clay's office. Dr. Clay did enjoy the troubleshooting process of gaining audio from the online platform. The online platform allowed people all members of the webinar to see the same excel files. The purpose of this meeting was to ensure that all members of the project were on the same page in regards to the MODE tracker forms, which were found in the Google Drive. Several columns were added to increase the clarity. Columns were assigned to the different groups associated with this project.

5. **06/06/ 2016:** Dr. Clay gave me access to a Drop box folder which possessed files pertaining to PowerPoint's regarding Clinical Research. Another project which Dr. Clay is working on is creating an independent / self-paced/ online clinical research course. This course would be taken as an elective. As instructed by Dr. Clay, my duty involved going through the PowerPoint's and familiarize myself with the material. In addition, I began to note down slides, which I deemed unnecessary or would be out of the scope of the online course. I have created a preliminary syllabus, which listed out all of the topics that should be covered in the online course. The CRM course I took during Med Sci provided a template for the new syllabus.

6. **06/07/ 2016:** I provided Dr. Clay with the completion of my CITI training as per his request. Upon arrival, Dr. Clay provided the pharmacy students and I with a link, which led to a Health Literacy survey. After completing the survey, we noticed that a multimedia file was not working properly. The video was working but there was no audio. The questions that were associated with the multimedia question were omitted. The remainder of the survey was working properly. We discussed the answers to the questions. I became a little more familiar with language associated with prescriptions. Dr. Clay and the pharmacy students went out campus to conduct the survey at the Samaritan House. I continued to work on cleaning up the Clinical Research course material.

7. **06/08/ 2016:** I was given access to the MODE tracker found on the Google Drive. One of the duties was to monitor the tracker and provide an update to Dr. Clay on the weekly progress of the MODE forms. I had to count the number of MODE forms still at the clinic and the number of the MODE forms that have been sent back to UNTHSC. I spent the remainder of the afternoon studying for my MCAT.

8. **06/09/ 2016:** I continued to work/ attempt to clean up the clinical research slides found in the Drop Box. I provided some assistance in checking a small batch of MED-IND MODE forms that needed correction and verification. I had lunch with the Public Health students. The remainder of the afternoon printing out forms and preparing for the CRM Committee Meeting.

9. **06/10/ 2016:** I had to re-print my forms. I was mistaken and thought Dr. Clay was my major professor and not Dr. Simecka. I presented 2 projects to the committee. The weight-training project had to be scrapped because it required approval from IRB. The project I will be conducting is a review of the scholarly activity conducted by pharmacy students. Potential opportunity to extend my internship into the spring semester.

10. **06/13/2016 :** On Monday the Pharmacy students and I met in the conference room 409 for an orientation involving the processing of the medication-indication forms. Each individual was given a site. I took the responsibility of taking site 8. Several specific steps were taken to correctly process the MODE form. We had to look up the pair of medication and indication on pharmacy database (Lexicomp) to ensure they match. In addition to the medication and indication matching, the spelling had to be confirmed. We used One-Drive to compile the data into 5 excel sheets (2 sites per sheet). This activity took the whole day.

11. **06/14/2016:** Processed Medication and Indication forms till about 2 pm. The public health students were supposed to provide us with a new batch of MODE forms to process, but there was an issue that required to be fixed internally. These forms could not be processed at the time. The remainder of the day I used to study for my MCAT.

12. **06/15/2016:** The Public Health Students uploaded a new batch of Medication and Indication forms on OneDrive. The Public health students, pharmacy students, and I meet with Dr. Clay in his office to run through how to correctly process the Medication and Indication Revised MODE Forms.

13. **06/16/2016:** The morning was spent processing more Medication and Indication MODE forms. The Public Health students compiled all of the processed Medication-Indication MODE forms into a merged excel file. I had a meeting with Dr. Clay to discuss and clarify my role and responsibility in regards to the MODE Form tracker on Google Drive.

14. **06/17/2016:** There were no MODE forms that needed to be processed. I spent majoring of the afternoon learning how to count cells in excel with special traits. This was necessary so I can create formulas in order to account for the quantity of MODE forms at different locations using the Trackers found in Google Drive. The two trackers that I was responsible for was the database flags and the medication-indication flags. Dr. Clay requested CRM & TMR files that UNTHSC had in its possession. The information that was needed PID and the dates of all the CRM & TMR associated with that patient. This information could not be derived easily, and Upendra had to formulate a code in SAS to pull this report. I provided moral support. I spent a portion of the day studying Biological Sciences for the MCAT.

15. **06/20/2016:** Due to a religious event, I had to stay in Houston till mid-day. The remainder of the day was used to travel back to Fort Worth.

16. **06/21/2016:** Dr. Clay provided me with an article to review to help plan my proposal. The paper provides protocols that were used to document pharmacy student's impact on patient care. I planned a general outline for my proposal.

17. **06/22/2016:** My duty today was to reconcile the CMR and TMR files provided from 2 sources. One source being Walgreens, and the other being UNTHSC. There were 2 separate excel files. To match the data, I had to merge the documents together. I had to create new columns and paste the UNTHSC data into the Walgreens data file. Issues arose when the PID did not align. I copied blocks patients and completed this task for all 10 sites. The data that I reported back to Dr. Clay were patients that were present in UNTHSC data and no in Walgreens Data. The other set of data I report back to Dr. Clay was the patients that were present in Walgreens Data and missing from UNTHSC data. This information was necessary so that Dr. Clay can obtain the missing files from Walgreens and add to the UNTHSC database. I almost obtained access to the printer in the office, but was denied due to the lack of clearance from my laptop.

18. **06/23/2016:** My duty today was to reconcile the CMR and TMR files provided from 2 sources. One source being Walgreens, and the other being UNTHSC. There were 2 separate excel files. To match the data, I had to merge the documents together. I had to create new columns and paste the UNTHSC data into the Walgreens data file. Issues arose when the PID did not align. I copied blocks patients and completed this task for all 10 sites. The data that I reported back to Dr. Clay were patients that were present in UNTHSC data and no in Walgreens Data. The other set of data I report back to Dr. Clay was the patients that were present in Walgreens Data and missing from UNTHSC data. This information was necessary so that Dr. Clay can obtain the missing files from Walgreens and add to the UNTHSC database. I almost obtained access to the printer in the office, but was denied due to the lack of clearance from my laptop.

19. **06/24/2016:** I sectioned of my morning and dedicated to studying for my MCAT. I compiled my PowerPoint's from my CRM class placed it into the Drop Box. I continue to research papers to cite into my background. A document I became familiar with was the ACPE 2016 Standards. This is the document that the College of Pharmacy has to fill out in order to see if they meet the requirements laid out by the regulatory agency. My goal was to identify areas that required the College of Pharmacy to document the scholarly activity conducted by the student.

20. **06/27/2016:** I compiled a report for the outstanding MODE forms at the clinics. I finalized the syllabus for the online Clinical Research Class. This syllabus possessed a blend of the topics I learned during Med Sci and Dr. Clay's personal PowerPoint presentations. The portions I took from Dr. Clay were detailed slides such as budgeting. There was a fairly great deal of overlap of topics between the two sets of PowerPoint presentation.

21. **06/28/2016:** Due to the lack MODE forms that did not need to be processed, the remainder of the day was used to complete a full length MCAT and study for the MCAT

22. **06/29/2016:** Database MODE forms were returned, but there were discrepancies that were found in the information provided back from the Clinic. The data points couldn't no be simply replaced into the baseline database. Such special cases had to be reviewed on an individual basis, which would be done by the Pharmacy students. Here the pharmacy students had to go back into the database and look at the dosage of the medication to determine which the particular medication would be classified as either a treatment or prophylaxis.

23. **06/30/2016:** Created a report to show the outstanding MODE forms for both database and medication-indication. In addition, I had to count the number of forms that were held by the HealthHIV who serves as a middleman between UNTHSC and the individual clinics. HealthHIV has been dispersing the forms in batches. This was done in order to avoid overwhelming the sites. Previous reports did not include this information. It appears that HealthHIV have not sent out all of the forms. Certain clinics still have not received database flags because they were still working on medication-indication MODE forms. A second report was generated to quantify the number of CMR & TMR MODE forms we have received and in possession at UNTHSC. This report was generated with the help of Upendra. Dr. Clay received corrupt files and but I was not the culprit. I had registered for my MCAT.

24. **07/01/2016:** With no work needed to be done in regards to handling or processing MODE forms, the half the day was spent catching up Daily Internship Journal entries. The remainder of the day was spent studying for the MCAT.

25. **07/05/2016:** New rotation of Pharmacy students had arrived (Caleb and Lindsey). There was an error on HealthHIV side because the MODE tracker was showing certain files were in possession at UNTHSC, which had bypassed the middleman. I talked to Upendra and Timmy to resolve this issue. A screenshot of the email from Timmy's account showed that UNTHSC had received the files in question. I generated another report of the MODE forms and informed Dr. Clay what was outstanding.

26. **07/06/2016:** The MODE forms that still outstanding were located. HealthHIV received a large batch of MODE forms. These forms will be received by UNTHSC fairly soon. I began cleaning up the OneDrive with the help of the Public Health students. This was done in anticipation of the big batch of incoming MODE forms. Previously, files were missing or misplaced due to the number of files present in the "excel_mode_files" folder within One Drive.

27. **07/07/2016:** I took the initiative to setup a meeting for the morning to discuss the handling and processing of the upcoming MODE files. This would serve as an orientation for the new Pharmacy students (Caleb and Lindsey). I also thought it would be a good idea to invite the Public health students to insure every member at UNTHSC was on the same page. I was able to reserve room 409 with Ms. Hopkins. I came up with a brief outline of the roles of various individuals to optimize the process.

28. **07/08/2016:** Unfortunately, I was not aware that none of the Pharmacy students would be available to attend this meeting. The meeting still proceeded, but served a similar purpose. With the help of Dr. Clay and the Public Health students, we were able to put together a document that created a step-by-step processing protocol that would be done by when handling MODE forms. This outlined the roles of different individuals in this supply chain. My duties involved receiving the MODE forms from the Public Health research assistants. I had to distribute the workload to the available pharmacy students. Once a batch of MODE forms was processed and ready to correct in to the baseline dataset, I will notify all the members associated in UNTHSC. We held another meeting in room 409 with Dr. Suzuki explaining the protocol created at the morning. The purpose of this meeting was how to reconcile the CMR & TMR forms and construct a tracker to handle the complex CMR& TMR original forms and the MODE forms.

29. **07/11/2016:** The morning was spent preparing for my MCAT. In preparation for my orientation with the new students, I emailed everyone the MODE form processing protocol. During the meeting, we ran through exactly how process the 2 types of MODE forms (database and medication-indication). Previous pharmacy students were present and were able to assist Caleb and Lindsey. I processed several medication-indication files during the orientation process. After streaming lining the process, and creating separate folder specifically for the Pharmacy RAs, there was a lot less confusion.

30. **07/12/2016:** With the creation of the MODE form processing protocol, I assigned the pharmacy students equal amount of files in regards to database flags. With this protocol in place, the pharmacy students could work from remote locations. There was a slight hick up in the process. Confusion resulted from where an individual needs to place a file after its been processed except a couple queries. Pharmacy students could not process these queries. Such queries required to be handled by Dr. Clay. I created another folder such that these MODE forms need to be processed by Dr. Clay separately. We held a meeting in room 409 in the afternoon to discuss the creation and setup of the online clinical research. The pharmacy students were introduced to clinical research PowerPoint presentations. They had to provide personal thoughts on the content on the slides. This led to discussion of the content and what is the best way to present said content to other pharmacy students. I also provide feedback, but more so in the structure and delivery of the course. A significant topic that was discussed was if the course should be linear and progressive or broken into modules in which the students could pick topics they were interested in pursuing. At the end, we managed to go through only a few slides, but developed a platform of how the course would be structured.

31. **07/13/2016:** Dr. Clay requested certain CMR&TMR files for discussion with actual pharmacies as they were having difficulty processing MODE forms. I did not have initially have access, but served as a liaison to resolve this issue. I was given access to this the CMR&TMR files later that day. In the afternoon, I met with Dr. Clay to come up with a protocol to complete the CMR&TMR reconciliation process. The pharmacies had complied CMR&TMR based on PID and compiled it into 10 different files. UNTHSC had the same data, but combined in 1 file. During our meeting, we completed a step-by-step process on how to identify data. Using highlighters, we were able to come up with a legend. At this time, the process only involved Dr. Clay and I. I took the UNTHSC data, and created 10 different excel sheets to accommodate data each site. The process that we had developed had to be repeated for each row and every site. We fine-tuned our process when orienting Lindsey. The remaining pharmacy students were oriented over the phone. I was responsible and began working on Site 05.

32. **07/14/2016:** After completing several CARS passages, I met with Apeksha. There as been some communication error when receiving MODE forms. Apeksha discovered, MODE forms were downloaded, and the MODE form Tracker on Google Drive was being updated, but the forms were not sent to me in order to distribute to the Pharmacy students. Apeksha and I informed the other Public health students of the protocol again. At that time, I got my hands on the MODE forms that required to be processed. I downloaded the zip files, and manually dragged and dropped individual files into the Pharmacy student's folder.

33. **07/15/2016:** CMR&TMR reconciliation continued for different sites. I completed site 05. At this time, I created a created a new report. This report combined the MODE form tracking process with additional information. The new excel sheet highlighted the number of MODE forms handled by the 3 separate groups at UNTHSC: the Pharmacy student, Public health students, and Dr. Clay. This document showed the number of files that the individual needed to process. From an administrative standpoint, one could effectively see when and where manpower was needed.

34. **07/18/2016:** Due to technology differences, a new folder in Drop Box had to be setup such that Dr. Clay can review database MODE forms that required higher review. I was and still am responsible to populating this folder and notifying Dr. Clay. Later that morning, a meeting was held with Dr. Suzuki, Public Health students, Dr. Clay and I. I presented the "manpower" excel spreadsheet that I created. One particular question Dr. Clay and I inquired was in regards to when I needed to notify Public Health students that there are MODE forms that they needed process. This matter was initially debated, but Dr. Suzuki claimed it did not matter. After the meeting, I met with the Public Health Students as they voiced some concerns in regards to the files they needed to process. The current folder was populated with individual MODE forms. The Public Health students required these forms to be in a "zip" format. This process had to be done because it would be easier to download and process large batches of files. During this time, I learned how to compress MODE forms into "zip" folders.

35. **07/19/2016:** Dr. Clay had reserved a room in the library such that MODE forms can be processed. I helped process medication-indication MODE forms whereas the remainder. In the afternoon, Dr. Clay, Lindsey, Caleb, and I met for our weekly discussion on creating the clinical research online course. We managed to discuss on lecture and boil it down to its elements. I created a Google Doc to compile the minutes from each meeting. With this information, one will able to simply copy and paste into PowerPoint and create course useable slides.

36. **07/20/2016:** With all reports completed, and MODE forms dispersed to the Pharmacy students, I spent the majority of the day completing my proposal. I was notified by Dr. Clay to obtain both database MODE forms and medication-indication MODE forms for next Monday's discussion. The remainder of the day was used to study for my MCAT.

37. **07/21/2016:** I aided in completing Medication-Indication MODE forms from Site 09. During the afternoon, I spent time preparing for my MCAT. Finally, I continued to work on my proposal.

38. **07/22/2016:** My request for a 3-semester internship was denied. Initially, I thought I would be able to submit my proposal during the fall and defend my thesis in the spring. This was error was due to miscommunication and I accept responsibility. I spent the rest of the day working on my proposal. I spent the entire night at the library putting together a proposal to present to Dr. Clay.

39. **07/23/2016:** I had a meeting with Dr. Clay on this Saturday morning at 9am to discuss the proposal. Dr. Clay had a read of my current proposal at that time, and decided to make changes to the proposal. My initial focus was attempting to develop the methodology to see the amount of scholarly activity conducted at UNTSCP. Once the methodology would be developed, we could translate the project into potentially patented software. The end goal would be a unique platform for which students and faculty can discuss scholarly activity. Faculty could use this platform to advertise available for research assistants.

40. **07/25/2016:** Based on the meeting from Saturday, I had to make the appropriate changes to the proposal. The new direction of the project would involve looking at research design being taught in classes. We met in EAD 729 at 3pm for our weekly project meeting. As usual, there were some technically difficulties setting up the laptop with the projector. Our discussion was to aim at the handling of returned MODE forms from clinics. I obtained the responsibility to monitor the tracking forms found on Google Drive. After the meeting, I continued working fixing and completing my proposal. Dr. Clay provided supplementary reading on the mapping schematic of the various appendixes of ACPE.

41. **07/26/2016:** After finishing the proposal draft and obtaining approval from Dr. Clay copies were sent to the remainder of the committee. It was a very stressful day as the deadly is near the end of the week. We met in RES 409 with Caleb and Lindsey to continue discussing the online course. Dr. Clay provided me with a mapping worksheet, which listed all of the courses found in the PharmD curriculum. In addition, the PharmD curriculum can be assessed based on the various domains of learning according to CAPE. My duty involved becoming familiar with the various domains and start looking at program learning outcomes that are similar to definition of research design according to ACPE.

42. **07/27/2016:** I received feedback from the remainder of the committee members in regards to my proposal. The feedback I received for my initial proposal was "unacceptable." I spent the remainder of the day fixing my proposal and making the appropriate changes based on comments from the remainder of the committee members. The section that lacked the most information was background. I needed to provide more background on previously conducted studies.

43. **07/28/2016:** I resubmitted my proposal to the committee members for approval. I obtained access to the CMR/TMR folders from Devanshi. My objective after gaining these files was to maintain a record the total number of CMR/TMR forms obtained from the clinics, and maintain a record of the total number of MODE forms received from the clinics.

44. **07/29/2016:** I obtained approval for my proposal from the committee. I obtained the signatures and submitted my proposal. Between the edits from Dr. Clay and the remainder of the committee members, the final proposal that was submitted was Proposal_V11.

45. **08/01/2016:** I obtained approval for my proposal from the committee. I obtained the signatures and submitted my proposal. Between the edits from Dr. Clay and the remainder of the committee members, the final proposal that was submitted was Proposal_V11. I had a meeting with Dr. Clay to review the comments made by the committee. Even though the proposal was accepted, the proposal would still need to be revised and finalized. The goal of this discussion was to focus more on the background and literature review. Dr. Clay provided links to research papers showing the current state of research conducted by pharmacist.

46. **08/02/2016:** I was responsible for the reconciliation of the dates of the CMR / TMR files. The pharmacies have a file, which lists the dates they created and filed forms. UNTHSC has a file that lists the dates they have received the CMR/TMR forms. My responsibility was to reconcile this data. We meet at 3pm for our weekly discussion for the online clinical course.

47. **08/03/2016:** UNTHSC had received MED-IND MODE forms from Site 9, which needed processing. Apeksha required assistance with distributing the database flags from Site 8 and Site 1. These forms needed to be processed by Caleb and Lindsey. I continued to serve as an administrative liaison and forwarded the files to the APPE students for review and processing.

48. **08/04/2016:** The CMR/ TMR reconciliation still continues. CMR dates provided from the pharmacies shows the date they captured patient ID for the first time and the date the form was received. These dates needed to match the TMR form dates that were provided to us. I was responsible for the reconciliation of the CMR/TMR forms from site 5. I provided Dr. Clay with the weekly update to the status of the MODE forms. It included the number of MODE forms that are currently being processed by Caleb, Lindsey, and Jerome.

49. **08/05/2016:** I held a conference call to address issues with MODE forms. The call was with Lindsey and Caleb. The subject of the call was to go over the processing of the database mode forms. They had forms that they were unable to process. The responses sent from the clinics in the MODE forms were not acceptable. Further clarification was needed. With the advise from Dr. Clay, these forms were placed in a different folder for Dr. Clay's review. Had a discussion with Dr. Clay to obtain the official title of my project. I met with Dr. Simecka to obtain his signature for my "Intent to Graduate" form. I obtained the signatures of the remainder of my committee in the afternoon. I submitted the form to GSBS. The remainder of the day was used to review for my MCAT.

50. **08/08/2016:** Dr. Clay provided some time for my MCAT review in the morning. I had received an email from Jerome in regards to getting two files with the same name but the contents were different. The MODE form file was named incorrectly. I had to take the file to the public health department to find the original name of the MED-IND MODE form so it can be processed correctly. We had conference called with DeMayo to attempt to get on the same page due to issues on the MODE tracker forms on the Google Drive. There were differences in the number of MODE forms received by UNTHSC. It seemed that the members of the public health department was not filling out the MODE form after the file was received in the private email. This was the subject of the weekly team meeting. Responsibilities were assigned to members of the public health students in order to go back and fill out the MODE tracker forms present in the Google Drive.

51. **08/09/2016:** Based on the proposal, I needed to become familiar with the IRB procedures at UNTHSC. I spent the morning review the website and getting acclimated with the procedures. I downloaded the appropriate files and began filling out the form. We met at 3pm for our weekly discussion for the online Clinical Research elective course

for pharmacy students. It seems that the proposed timeline for the course was extremely optimistic. My responsibility was to watch a TED talk video in regards to epidemiology and come up with 5 questions. The goal of this exercise was to come up with an interactive activity for future students to complete while watching the TED talk video. This provided a brief but interesting take on the subject of epidemiology. The questions were discussed with Lindsey and Caleb. Questions were discussed and the final question list was compiled for the video worksheet.

52. **08/10/2016:** I had a meeting with Upendra due to errors in the files that were being uploaded by the pharmacy students. The naming convention was incorrect and needed to be changed. The SAS program was not able to pick up some files due to wrong naming convention. In addition, I was asked to complete a random check of the MED-IND MODE forms that were processed. This random check was to make sure the pharmacy students were correctly processing the MODE forms.

53. **08/11/2016:** Completed a full-length practice MCAT exam. I began emailing the committee members to inquire about their schedules for the thesis defense. I had to find a block of time that all members of the committee could meet for 2 hours. My first priority was to see when Dr. Gwirtz was available. After obtain her schedule, I emailed the remainder of my committee. The date and time slot that worked with everyone's schedule was November 14 from 1-3pm.

54. **08/12/2016:** I met with Kshitiz in order to discuss the processing of the database MODE forms. When processing these MODE forms the pharmacy students need to add an additional column where they can place their comments. The column will need to be labeled "UNTHSC Corrections for data base." This naming convention needed to be the same amongst all of the files. The pharmacy students were notified via email. This naming convention needs to be precise as it how SAS will recognize and extract the data.

55. **08/15/2016 – 08/19/2016:** Based on a discussion with Dr. Clay, I was under the impression I would get this week off to prepare for my MCAT exam on the 20th. This was not the case. Due to miscommunication, I was offered to take 17-19th off. I have to make up the hours lost on the 15th and 16th at a another time.

56. **08/20/2016:** MCAT IS OVER!!

57. **08/22/2016:** I obtained access to the syllabus for all of the courses provided by the College of Pharmacy at UNTHSC. Began my initial review of the documents to see which courses have incorporated the idea and/or topics of research design. I had a meeting with Dr. Clay and David. David is a 4th year pharmacy student who is currently completing his APE rotation with Dr. Clay. During this meeting, we outlined our duties and tasks that need to be completed by our next meeting (Thursday). I was assigned to complete the data tables necessary to complete my Thesis project. From 3-4pm, we had our weekly CDC data meeting. We had a chance to report the work that has been completed with the Public Health Students and Dr. Suzuki. I provided the number of files received from the clinics, and the number of files that been processed by pharmacy students. At 5pm, we had another meeting to recruit 2nd, 3rd, and 4th year pharmacy

students who would like to volunteer to help with the CDC project. With the reduced number of students on rotation with Dr. Clay, we require help processing the MODE forms returned to us from the pharmacy and clinics.

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59. **08/24/2016:** After completing the IRB exempt form, I began developing the questions that will be asked of the students. I researched questionnaire methodology and reviewed samples. I was not aware of the complexity and the necessary steps to develop a questionnaire. I received some outstanding MODE forms from Site 2 from DeMayo, which required to be processed. These files were forwarded to the David for review and processing.

60. **08/25/2016:** I setup a meeting with Dr. Cunningham in order to obtain a Letter of Recommendation for my medical school applications. Dr. Simecka wanted me to meet with Dr. Penzak who is the Chairman of the IRB at UNTHSC. The goal of this meeting was for me to further gain an understanding of the procedures involving the IRB. I needed to ask if the IRB required a copy of my questionnaire and interview questions even if I was not going to use them to complete the early stage of the quality assurance project.

61. **08/26/2016:** With the expansion of the team as per the Monday meeting, I had to manage several groups. The groups included the volunteer pharmacy students, the paid pharmacy students, and the public health research assistants. Dr. Clay introduced me to Mrs. Coyle who works in the Dean's office and oversee payroll. I had a discussion with Mrs. Coyle to become familiar with the payroll process. I created a payroll document that monitor the hours worked by the paid pharmacy students. This document was merely for records keeping on the administrative side.

62. **08/29/2016:** I read through my proposal and prepared with my meeting Dr. Penzak. I needed to provide brief summary of my thesis project in order to understand the necessary steps to obtain IRB approval. I met with Dr. Penzak at 1pm. Based on our discussion, I would have fill out and file for Exempt Status. The review of the course syllabi and materials possessed "minimal risk" and it would fall under EXEMPT status. In addition, the questionnaire and interview questions do not need to be filed at this time.

If the project continues to those stages where I would be administering questionnaires and conducting interviews, that process will have to undergo IRB review. Another application would have to be filed. He advised it would be best if the questionnaire and interview question were supplied with the EXEMPT form on the first go. This would allow for review and I would obtain approval once. I would not have to go through the application process again.

63. **08/30/2016:** I continued to work on my IRB EXEMPT forms and made slight changes to the questionnaire and interview questions. I held an orientation for the volunteer pharmacy students who came on board to the help process MODE forms. We meet on the 3rd floor of the library at 9am. We went through the process of handling MED-IND MODE forms. With approval from Dr. Clay, I decided it was best to have the new volunteers to only work on MED-IND. The task was very simple, but just time consuming. The majority of the volunteer pharmacy students were 2nd years. Working on the MED-IND MODE forms would help the students become familiar with medications and indications. I walked through the process of handling first. After watching me, I asked them to process the forms in person to make sure they had a handle on the entire process. Only 2 of the students were successful: Rushil and Kevin. The remainder had issues with accessing and setting up One Drive. I advised they get help from the IT department and reschedule another orientation meeting with me.

64. **08/31/2016:** I gained access to the course syllabus and materials from Dr. Clay. I started reviewing the materials to become familiar with terminology and the general quantity of the files that required to be read. I held another orientation session with the 2 other pharmacy students at 3pm. We completed the same procedure as yesterday. The new students have caught on to the process very quickly.

65. **09/01/2016:** David and I had our weekly meeting to discuss the online clinical research course. David provided me with reading of a case report and review of literature. Based on my understanding, the case report was discussion of drugs interactions with one another leading to hypotension. The drugs in question involve ritonavir with atazanavir and amlodipine. I was contacted with Caleb in regards to if and where to maintain a work log. I created an Excel spreadsheet and shared it Dr. Clay. This was made because to maintain a work log of the paid pharmacy students. Dr. Mathew has taken over the CRM program based on the appointment from Dr. Singh and Dr. Gwirtz. Dr. Mathew is now the new Director for the CRM program. I joined in on a conference call with Dr. Clay. The purpose of this call was to walk through the data collection form with an individual would fill out from the clinic side of the CDC project. The importance of this call was to ensure the health care professional became familiar with the data collection form. Dr. Clay is hopeful that the individual would be more likely to send data without to many errors. This would hopefully reduce the need to generate queries.

66. **09/02/2016:** I had a meeting with Joshua at noon. Joshua is the president of MSCSO for the current year. The goal of the meeting was to introduce one another and get feedback on how to my MSCSO successful. I provided all the information in regards to making new MSCSO shirts. Dr. Simecka agreed with Dr. Penzak's opinion to send in the questionnaire and interview questions with the first EXEMPT IRB request form.

67. **09/05/2016:** I received feedback from Dr. Clay in regards to updating the Summary MODE tracker form. The update included the names of the sites to be added on the right side of the excel sheet. The change was adopted for the remainder of the tables. I had a meeting with new volunteer pharmacy student who was added onto the project recently. Due to miscommunication, the student was waiting on the 3rd floor in the pharmacy building instead of the library. A confirmation email from me was sent to the student earlier that morning in attempts to confirm the location and time of the meeting. We had our weekly data base meeting at 3pm. I provided a brief overview of the volunteer and paid pharmacy students and the status update of the forms that required to be processed.

68. **09/06/2016:** I completed the questionnaire questions and interview questions. I decided to pilot the questionnaire by administering to friends to see if the questionnaire made sense. I was able to get a known classmate from Med Sci to take the questionnaire. I took note of the comments she had to provide. The clarity of the questions needed to be addressed. A comment was made on the length of the questionnaire. The participant mentioned the questionnaire was too long and needed to be shorter. She mentioned 10 questions would be ideal.

69. **09/07/2016:** I continued to pre-test the questionnaire. I was able to get 2 other students from TCOM to take my questionnaire and obtained their opinion. The length of the questionnaire was brought up again. I began designing my data capture tools for completing the review and examination of the class syllabi and materials. I talked to David to see if he had his power points for course materials that were not present in the folder shared by Dr. Clay.

70. **09/08/2016:** David and I met with Dr. Clay to discuss the online clinical research course. David's rotation was coming close to an end. He had to prepare for a short presentation which he would practice fairly soon. We had a chance to idiot the written document of the David's case report. In addition, I was assigned to become familiar with the steps necessary to be taken in order to validate a questionnaire. I was responsible to find examples or new articles for an FDA clinical hold. I was put on the spot to use scientific terms to describe my sampling method I employed to pre-test my questionnaire. I did not know the answer. Dr. Clay used this opportunity to show how detailed I needed to know the material for my thesis defense. The answer Dr. Clay was looking was convenience sampling.

71. **09/09/2016:** I designed my data tables. I began making the data tables for each of the individual courses in the pharmacy curriculum. These data tables included the course number, the name of the individual lectures, and the course instructors. I had to repeat the task to create a Master file for all of the classes offered by the College of Pharmacy.

72. **09/12/2016:** Reviewed syllabi and materials for Semester 1 for P1 classes. Distributed MED-IND MODE forms to volunteer pharmacy students. We had a database meeting in EAD 600. I provided the weekly update to on the status of processing MODE forms that is being completed by both paid and volunteer pharmacy students. After the meeting with the public health research assistants, Dr. Clay and I met with Jerome who has been

working on this project for a while. The purpose of this meeting was to discuss the transition of my role as liaison. With my time in the internship coming close to the end, Dr. Clay decided he needed someone who will be around for a while at UNTHSC. I needed to take the time to focus on my thesis project. I presented my role to Jerome and discussed all of the activities I do on a daily and weekly basis. Based of my presentation, Jerome accepted to take over my role.

73. **09/13/2016:** Meet with Dr. Clay and Kevin to discuss the project. Kevin is taking a course taught by Dr. Clay. Kevin's role will be to assist me with my thesis project. The end goal may entail Kevin taking over the project in the future. Reviewed syllabi and materials for Semester 2 for P1 classes. Reviewed syllabi and materials for Semester 1 for P2 classes. I received emails from volunteer pharmacy student inquiring about how to process MED-IND forms where the data has already been entered.

74. **09/14/2016:** Reviewed syllabi and materials for Semester 2 for P2 classes. Reviewed syllabi and materials for Semester 1 for P3 classes. Met with Kelvan to train how to handle data based flag MODE forms. We also discussed how to handle time sheets. I met with Jerome to quickly discuss how to handle the distribution of MODE forms.

75. **09/15/2016:** Reviewed syllabi and materials for Semester 2 for P3 classes. Reviewed syllabi and materials for all of P4 classes. Reviewed syllabi and materials for all elective classes. I met with Jerome to go over over how to gather the information in regards to do the weekly reporting on the MODE forms.

76. **09/16/2016:** Dr. Clay suggested to work on my literature review. Each college within UNTHSC is assigned a library liaison. For UNTSCP, the library liaison was Tim Kenny. Dr. Clay and David helped make the introduction. During the meeting, I provided Tim a brief overview of my study and described my needs. At this point in time, I only thought PubMed would be useful to finding scientific literature. I was wrong. Tim suggested I try ERIC, which is similar to PubMed but more focused on education literature. As my field of review is curricular assessment, ERIC would be ideal. I attended the QPIF database meeting at 315pm. I provided a brief over view of the MODE forms that have been processed and the number of forms that need to be processed by the pharmacy students. Today is actually a great day because data collection is coming to an end.

77. **09/19/2016:** I met with Dr. Mathews in person to officially introduce myself. I had a brief opportunity to practice my elevator pitch in regards to my project. In addition, we discussed my thesis project and assigned timeline. We also discussed the overall nature of my student experience. Later that afternoon, David and I met with Dr. Clay to practice David's presentation, which would take place later this week. We spent close to 30 minutes on the first several slides of his entire presentation. We spent close to 15 minutes perfecting his introduction. Dr. Clay was recording while David was presenting. This provided David a look at himself and showed where improvement could be made. During this discussion, I took notes on how present and what different parts of the presentation entail. The introduction should be dynamic as we are providing the audience with new knowledge. We should focus on how the care report is unique. David at this time had way to many slides in his presentation, which would only last 12-15 minutes. Dr. Clay suggested removing some slides and placing them in a back-up /

supplementary deck of slides. One key take away I took from this practice session was not to sure short hand in formal presentations. Always use full words. Being exciting, and engage the audience. Unfortunately due to his schedule, Rushil will no longer be able to volunteer with the data base cleanup project.

78. **09/20/2016:** The public health research assistants requested my assistance to help validate the pharmacist's recommendation, which have "other" as an option selected in generic medications. I was given access to 80 files. I had to repeat this task for all 80 files. I had to leave a little early to Houston for a personal matter. I gained approval from Dr. Clay prior to my departure.

79. **09/21/2016:** The reason I am in Houston today is because I become an American Citizen. Over the past couple months; I have gone through the strenuous process of applying and interviewing to become an American citizen. Today is the oath ceremony. I took the oath with a record breaking 2500 other individuals. While in Houston, I was able to take my car into the shop for a regular maintenance check. There seems to be some issues that need to be addressed. I am hoping to get back the car tomorrow afternoon so I can get back to Fort Worth.

80. **09/22/2016:** Unfortunately the shop was not able to get my car back to me today. I continued to complete a 2nd round of data collection. This entailed me review the class syllabi and materials for the curriculum for the second time. I completed reviewing class syllabi and materials for P1 and P2.

81. **09/23/2016:** I managed to get my car back and headed back to Fort Worth. I completed reviewing class syllabi and materials for P3 and P4.

82. **09/26/2016:** I met with Jerome today to go over his duties, as he is about to take on my role. We had our database meeting at 5pm, where Jerome presented the weekly update to the tracking and processing of MODE forms. I began my 3rd and final review of the class syllabi and materials. I finished reviewing all of P1 today.

83. **09/27/2016:** Continued review of the class syllabi and materials. I finished P2 today. Dr. Clay and I meet with Kevin for the weekly PHAR 7203 class. Unfortunately, today's meeting did not go well because I let my electronic hard drives in Houston, which contained my data. The point of this meeting was to review the data I have collected to this point. Instead, we looked at my questionnaire and interview questions. We addressed the length by coming up with a different questionnaire methodology for the students. Instead of 26 questions and drop-down menus containing the entire curriculum, I suggested going with a cluster approach. Similar to the semester-end questionnaire where every student has to reflect upon their course, we would administer the questionnaire to students to ask if they learned about the 4 components of research design for 1 class. Instead of questioning 1 student about all 4 components, I suggested we randomly select a cluster from the class. This cluster would be only responsible to reflecting up on 1 component of research design. Upon discussion, Dr. Clay and Kevin this methodology could possibly work. During this meeting, some of my female friends from campus kept interrupting the session. I found it quite hilarious that they did not recognize Dr. Clay to be a faculty member. Now, Dr. Clay has the

misconception that I am popular amongst the female population.

84. **09/28/2016:** I completed reviewing class syllabi and materials for P3. I obtained an old copy of a thesis submitted from previous years. This document only contained titles of the necessary sections found in a thesis. I created individual word documents with each of these sections. The goal behind this exercise was to become familiar with the thesis sections and to provide documents to the committee members from individual sections. This would help smoothen the review and checking process.

85. **09/29/2016:** I completed reviewing class syllabi and materials for P4. Dr. Clay provided the CAPE educational outcomes that UNTSCP follows. I review the entire program learning objectives and tried to identify which of these outcomes would be similar to research design. Conducted more literature review and took notes from the research paper Murphy et al 2007. As my primary goal is still to attend medical school, I joined the Human anatomy society to keep ties to student organizations that explores human anatomy. New leadership positions have opened and the organization was accepting applications. I have applied to become the volunteer coordinator for HAS. I received an email from Asama asking if there is any available work. At this time, MODE forms were not coming in as frequently as they were before. I also was not notified by Dr. Clay to include Asama as a paid pharmacy student. This error in communication was fixed.

86. **09/30/2016:** I have began review the class syllabi and materials to find the classes that meet the program learning objectives that has been set by CAPE. I completed review of P1. I have continued with my literature review and read and took notes from the research paper Noble et al 2010. I quickly orientated Asama to the new protocols necessary to process MED-IND and data base flag MODE forms. Asama has previously worked with the processing of the MODE forms, but the location of files and folders had been altered.

87. **10/03/2016:** I continued to review class syllabi and materials to find the classes that meet the program learning objectives that has been set by CAPE. I completed review of P2 and semester 1 of P3. I attended the data base meeting. I provided a quick overview of the tracking process of MODE forms. The MODE Tracker has NOT been updated on our end. This issue was brought up during the meeting. The public health research assistants took responsibility to update the tracker. I provided a brief overview of the MODE form processing completed by volunteer and paid pharmacy student. Dr. Simecka approved the use of the questionnaire and interview questions. I was ready to submit to the IRB.

88. **10/04/2016:** I completed review of class syllabi and materials for semester 2 of P3, P4, and electives. I was notified via email that I got the volunteer coordinator position of HAS. I attended my first HAS officer meeting at noon. The first HAS meeting was going to November 11. We discussed lunch options and upcoming events. I suggested a few volunteer events I have attended when I was in Med Sci. Due to error in scheduling and miscommunication, the weekly Pharm 7203 meeting was rescheduled for later this week.

89. **10/05/2016:** The new task assigned to me and Jerome was in the regards to the list of

"Medication" from the MED-IND file. The public health students extracted the full list of Medications from the MED-IND files. David who identified errors was able to highlight cells with issues. These errors needed to be addressed. We had to combine through this list and look for errors. The errors had to be correct in the MED-IND files. This assignment was referred to as the Medication List Clean up.

90. **10/06/2016:** Continued cleaning up the Medication list. I came up with a protocol that would enable the volunteer and paid pharmacy students to work on the cleaning up the medication list. The protocol entailed breaking up the 450 medications into 3 sections. The pharmacy students who were assigned to this task were Kelvan, Jerome, and Asama, Caleb, and Lindsey.

91. **10/07/2016:** I contacted the volunteer and paid pharmacy students in order to orient them to the Medication List Clean up task. I met with Jerome to discuss the remainder of my duties. We talked about the distributing of MED-IND forms should be taken by the volunteer students. The paid pharmacy students should process the database flag MODE forms as they have the experience. I met with Kevin for the rescheduled Pharm 7203 weekly meeting. I presented my data collection to Kevin. We discussed if he could help come up with a list of vocabulary terms that would trigger in his mind when he say the components of research design.

92. **10/10/2016:** Completed the "Intent to Denfend" form and obtained the signatures from Dr. Clay and Dr. Simecka. I talked to Derrick in order to understand how to make room reservations. I started working on my acknowledgement section of my thesis. I documented the work hours from paid pharmacy students for the past 2 weeks. I attended the HAS officer meeting to discuss future food options and upcoming events. The next social event would be taking place at happy hour at Blue Mesa. The next major volunteer event would be Habitat for Humanity. During the database team meeting, it was again announced that data collection has officially ended. Granted this still meant processing MODE forms, but the data collection for the project has ended. We need to tackle the QPIF medication list consolidation. QPIF stands for quarterly patient information form. After the Medication list consolidation, the next step will involve the indication list consolidation. This will entail using the ICD10 to check indications.

93. **10/11/2016:** I researched samples of acknowledgement sections, and managed to complete the acknowledgment section of my thesis. I obtained the signatures from Dr. Mathew and Dr. Uteshev for my "Intend to graduate," form. The big day is November 14, 2016 from 1-3pm in RES 409. Dr. Simecka has scheduled a meeting to discuss the overall progress of my thesis as my defense is coming close.

94. **10/12/2016:** My new task was to clean up the vaccination list. I needed to provide brand names of vaccines. I had to come up with a protocol in order to complete this task. I assigned Caleb and Asama to complete this task. I began working on my introduction of my thesis.

95. **10/13/2016:** I completed the introduction of my thesis. I began working on my background and literature review of the thesis.

96. **10/14/2016:** I completed the introduction of my thesis. I began working on my background and literature review of the thesis. I completed my weekly update of the MODE tracking forms and worked hours by the paid pharmacy students.

97. **10/17/2016:** I completed the background and literature review of my thesis. I began working on methods and materials. I attended the weekly database meetings and gave an update on the Medication List clean up and the vaccination list clean up.

98. **10/18/2016:** I had a meeting the entire committee to discuss the status of my thesis. I presented the status of the project. This included all of the data capture tools and the data collected from the tools. I presented the data analysis I will be conducting to analyze the data. Dr. Simecka's first question was "Why are you presenting your data like that?" I was completely caught off guard. I was not entirely sure what he was looking for. The committee members asked other questions in regards to my thesis. This was practice for the defense I have coming up. I was definitely caught of guard, but I understood that I should be able to answer such hard questions.

99. **10/19/2016:** Worked on data analysis for entire thesis data set. Further changes needed to be made in the Med list cleanup. I had to alter the protocol, and re-orient the pharmacy students. The vaccine list needed to be redone. Upon discussion with Upendra and Dr. Clay, any vaccines that are listed as a combination needed to be separated and brand names needed to be provided individually.

100. **10/20/2016:** Worked on the introduction, background, and literature review of the thesis.

101. **10/21/2016:** Completed the introduction and background of the thesis.

102. **10/24/2016:** Worked on the significance and specific aims. Instead of attending the database meeting, I held a separate meeting to work on the Medication List cleanup. One of the volunteer pharmacy students was able to recruit more pharmacy students. These students would be able to help with the data clean up process.

103. **10/25/2016:** Finished the significance and specific aims sections of the thesis. I met with one of the new recruited pharmacy students in order to provide an orientation. We worked through some MED-IND MODE forms. They picked up the process very quickly.

104. **10/26/2016:** Worked on results, conclusion and summary.

105. **10/27/2016:** Worked on results, conclusion and summary, and internship site.

106. **10/28/2016:** Finished results, conclusion and summary, and internship site.

107. **10/31/2016:** Attended the data base team weekly meeting. Provided an update for the Medication List clean up and vaccine list clean up. We scheduled conference call

to talk with members of the team outside of UNTHSC in order to set deadlines and to address the issues with discrepancies amongst MODE form reports.

108. **11/01/2016:** Attended the HAS monthly meeting. Learned about the blood vessels in the brain. Attended the conference call with members outside UNTHSC. Timmy was the individual from public health who took charge and cleaned up the tracker for the MODE forms on Google Drive. The forms that were missing and have not been received by UNTHSC were highlighted in red. The forms have to be resent by HHV.

109. **11/02/2016:** Created power point slides for acknowledgement and introduction. Briefly practiced my thesis in preparation for the practice run I have with Dr. Clay.

110. **11/03/2016:** First official practice run of my thesis. I felt pretty confident in the material, but Dr. Clay offered some changes. All professors that need to be acknowledged should be on one slide at the end of the presentation. Also I had to remove the pictures of the professors. I need to add sources to slides.

111. **11/04/2016:** Uploaded MODE forms that need to be processed by volunteer pharmacy students. There has been a great influx of MODE forms. Dr. Clay suggested using both volunteer and paid pharmacy students.

112. **11/07/2016:** 2nd practice going through of my thesis. The goal was to get to the specific aims and significance. This was not the case. The introduction was extensive and needed to be trimmed down.

113. **11/08/2016:** Continued to modify the thesis. Worked on materials, methods, results and conclusion. We had another conference call with the members outside of UNTHSC to discuss the future steps to be taken to address the missing MED-IND MODE forms. As per the discussion, MODE forms will have to be resent to the UNTHSC. Issue began with issues receiving emails. As result, the forms will have to be resent. Now we will expect a large volume of MODE forms that need to be processed. In addition, I meet a new student who will continue to work under Dr. Clay. This situation is ideal, as we will require assistance processing a large quantity MED-IND MODE forms. I communicated with the paid pharmacy students to obtain a status update on the vaccine list.

114. **11/09/2016:** I sent in the final draft of the thesis to obtain comments to Dr. Simecka and Dr. Clay. I meet with the new student and provided an orientation on how to process MED-IND forms.

115. **11/10/2016:** I worked on completing my thesis presentation. The goal was to complete a full presentation during my practice session with Dr. Clay. I created the slide deck containing all of the slides I will be using for my thesis presentation. I practiced the thesis presentation twice with two different colleagues from UNTHSC.

116. **11/11/2016:** Completed a full practice run of presenting the thesis. I need to put more emphasis on the materials and methods section. I put way to much

information into the introduction. I spend too much time defining terms and providing background. More background information surrounding the process of accreditation is needed. I finished the presentation in 34 minutes. Dr. Clay and Ms. Hopkins were kind enough to reserve room RES 409

117. **11/12/2016:** Practiced presenting thesis in RES 409.

118. **11/13/2016:** Practiced presenting thesis in RES 409.

119. **11/14/2016:** Successfully passed my thesis defense. The committee provided changes that need to be made to the thesis. The deadline to make these changes is Wednesday at 8am.

120. **11/15/2016:** Continued to make the appropriate changes to the thesis. This was done to address the issues brought up by the committee. The major areas that were addressed were the rationale, materials and methods, and results section of the thesis. Several diagrams had to be removed

121. **11/16/2016:** Created the forms that needed to be completed in order to graduate. I setup an appointment with Ms. Johnson for a check if I have completed all the forms necessary to graduate.

122. **11/17/2016:** Meet with Dr. Simekca and Dr. Mathew to obtain signatures. I worked on creating a PDF copy of my thesis. This involves converting my word and excels files into PDF. Using Adobe Pro found on the library computers to recreate the mega-thesis PDF file. I completed the Graduation Clearance Form by meeting with different departments across UNTHSC (Student financials, financial aid, library, and campus police). The protocol for the processing database flags needed to be updated. Based on a conversation with the public health students. The naming convention of the MODE files that have been processed by paid pharmacy students need to be changed. The date must be added to the file name.

123. **11/18/2016:** Meet with Carla Johnson to go over all the forms that needed to be completed for Graduation at 9am. I have a meeting with Mr. Lyon from the library for the electronic filing of my thesis.