

# An Innovative Clerkship in Pharmacy Education<sup>1,2</sup>

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The objective was to offer a comprehensive, elective, six-week clerkship experience in pharmacy education for PharmD students to develop their skills and stimulate their interest in the teaching and service aspects of academic life. The methods used included students participating in this rotation to meet the following outcomes through a wide variety of activities. These were: (i) creating and delivering an instructional module; (ii) assessing the learning value of that module or other instructional activity; (iii) participating in school committees and describing the committees' impact on the educational process; (iv) analyzing a variety of instructional methodologies and assessments used by faculty members; (v) discussing changes in pharmaceutical education over the last three decades; (vi) identifying, evaluating and discussing references and resources for pharmacy faculty to aid in their teaching; (vii) evaluating and discussing specific education journal articles of interest to the student; (viii) analyzing the role of specific national associations that impact pharmacy education; (ix) completing and presenting an education-related project; and (x) creating a portfolio to demonstrate achievement of rotation outcomes. Participant feedback and evaluations of the rotation were very positive. Student portfolios reflected their understanding of pharmacy education and the challenges and rewards of faculty life. Undergraduate students value the instructional activities of and interaction with these clerkship students. With continued success of this model, the rotation may become required for all students, as well as stimulate more of them to pursue academic careers.

## INTRODUCTION

The recruitment of pharmacy students into academic careers has been discussed at length in the last decade(1-8). Questions and concerns have been raised that with the advent of the PharmD degree as the sole entry-level practice degree, fewer students will opt to pursue post-graduate training to prepare for careers in academia(9,10). Additionally, while most clerkship rotations give students patient-centered practice experience in a variety of settings, very few focus on "academic practice." Recommendations have been made to involve students in experiences that may interest them in academic careers(11). A number of schools offer clerkship and residency rotations in education/teaching/faculty life to help prepare graduates for academic careers(12-18).

At the University of Colorado Health Sciences Center School of Pharmacy, students in the "track-in" PharmD program (to be phased out as of May 2002) complete seven six-week clerkship rotations in their final year of the program. Of these seven rotations, two are community-practice based, one is inpatient-based, one is in ambulatory care, one is in a specialty practice (e.g., psychiatry, oncology, geriatrics), and the two remaining are elective rotations. Students select two clerkships of interest from a list of elective rotations ranging from manufacturing to research to education.

The clerkship rotation described in this paper is an education-based elective rotation. It focuses on the service as well as teaching aspects of academic positions and provides students

with numerous hands-on opportunities in both areas. The rotation culminates in students' completion of a timely education-related project and a comprehensive self-reflective portfolio of their experiences to demonstrate achievement of rotation outcomes. The two primary preceptors for this rotation allow one or two students per six-week rotation during the fall and spring semesters to participate. The specific student-focused outcomes for this rotation are:

1. discuss changes in pharmaceutical education over the last three decades;
2. analyze the role of specific national associations that impact pharmacy education;
3. identify, evaluate and discuss references and resources for pharmacy faculty to aid in their teaching;
4. evaluate and discuss specific education journal articles of interest to the student;
5. analyze a variety of instructional methodologies and assessments used by faculty members;
6. participate in school committees and describe the commit

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- tees' impact on the school's educational process;
- 7. create and repeatedly deliver an instructional module;
- 8. assess the learning value of that module or other instructional activity;
- 9. complete and present an education-related project; and
- 10. create a comprehensive portfolio to demonstrate achievement of rotation outcomes.

The rotation employs a wide variety of activities to help students meet all of the specified outcomes. Weekly meetings help preceptors to determine students' progression toward meeting all outcomes. Students' schedule for the rotation mimics daily activities of the faculty preceptors. During unstructured, unscheduled time, students work independently toward achievement of outcomes. More specific details of the rotation follow.

## METHODS

This section describes the primary activities of the rotation:

- Initial meeting between students and preceptors for discussion of:
  1. students' and preceptors' expectations for the rotation,
  2. the syllabus and its use as a learning tool, and
  3. the students' schedule
- Participation in weekly preceptor-student meetings to discuss assigned/selected readings and determine progress toward achieving rotation outcomes,
- Attendance and appropriate participation in a variety of school committee meetings,
- Creation, delivery, and assessment of an instructional module for the P1 or P2 Professional Skills Development (PSD) course,
- Observation/facilitation/instruction in other courses, Facilitation and completion of a selected education-related project,
- Development and completion of a comprehensive reflective rotation portfolio.

### Initial Meeting

- A week prior to the start of the rotation, students are emailed a copy of the rotation syllabus (Appendix A), rotation calendar (one week of the six-week calendar shown in Appendix B), and a list of assigned readings for discussion in the initial student-preceptor meeting (Appendix C — Part 1 of the Week 1 reading list). Students are asked to create a list of expectations for the rotation prior to reading the syllabus, email those to the preceptors, and come prepared to discuss them at the initial preceptor-student meeting. Additionally, students are asked to read the other documents and come prepared to discuss them at the initial meeting. In this meeting, the following elements are discussed:
- **Student and Preceptor Expectations for Rotation:** Similarities and differences between students' and preceptors' expectations are discussed. At this time, minor modifications in the students' schedule and/or activities are made to ensure fulfillment of their expectations. Preceptors discuss with the students their role as "junior faculty" members. As such, "student" confidentiality, analogous to patient confidentiality, is discussed as these clerkship students will become privy to grades and possibly other student-sensitive information of those students

whom they instruct. The importance of maintaining their professionalism as junior faculty members by keeping this information confidential is emphasized.

- **Syllabus:** The rotation syllabus was designed using a template from the preceptors' Professional Skills Development course sequence. It is comprehensive in nature and is not only discussed with the students point-by-point, but also used as an example of how to create a course syllabus. The syllabus contains specific information regarding each major aspect of the rotation: development and delivery of an instructional module, completion of an independent project, achievement of outcomes and compilation of a portfolio, weekly meetings with preceptors and review of assigned readings, and the students' calendar. Following discussion of the syllabus, students sign a Statement of Understanding at the end of the document and submit it to the preceptors. This document is considered a contract between the student and preceptors that the student understands and is willing to abide by the syllabus as a guide for the rotation.
- **Time Management:** The students' calendar is discussed with the caveat that activities, times, or locations may change, so they need to be "flexible." Students are required to wear a pager and check their email daily. They are also encouraged to utilize their time between courses and meetings to work on their modules, projects, and portfolios, thereby reinforcing efficient time management skills.
- **Logistics - Office Space, Computer, Copy Charges:** Students are given keys to a graduate student office that they are allowed to use during the rotation. The office has several computers, printers, a small library and a phone. Students are also trusted with copy machine access codes that directly bill either of the school's departments or the Professional Skills Development courses.
- **Week 1, Part 1 Readings:** Students are asked to read the preceptors' article and syllabi regarding the Professional Skills Development courses in which they will be involved(19). These documents are discussed with the clerkship students in detail, as they will be spending the majority of their time as teaching assistants and instructors in the PSD courses for the duration of their rotation. They did not participate in these same courses during their P1 and P2 years (new entry-level PharmD program vs. track-in PharmD program).

### Weekly Preceptor Student Meetings

These meetings are led by the clerkship students where they are asked to come prepared with an agenda. Normally 90 minutes in length, the meetings allow for discussion of students' modules, projects and portfolios. Additionally, educational philosophies and many esoteric topics are often discussed. It is during these sessions that the students can express to the preceptors their accomplishments and frustrations with their roles as junior faculty members. These discussions are extremely valuable for both students and preceptors; the "a-ha" experience occurs many times as the students begin to understand why faculty members and the educational process as a whole function as they do. Assigned weekly readings are also discussed in any manner the students so choose; some write formal reports on which to base their discussion, while others prefer to base their discussions from their highlighted notes directly from an article. During weeks 3 and 6 of the rotation,

evaluations of the clerkship students for the school's Office of Experiential Programs are conducted and discussed during these meetings. Although students are provided feedback with regard to their performance on a continual basis, these periods designate a more formal time to discuss and document students' performance in the rotation.

### **School-wide Committee Meetings**

Clerkship students are asked to attend and participate in, when appropriate, in a number of school-wide committee meetings. Examples of these include curriculum committee, assessment committee, clerkship committee, committee on instructional technology, post-graduate professional education committee, and PI and P2 Course Directors' meetings. During these meetings, students are expected to either take minutes of the meeting or take notes for their own use to provide evidence of achievement for rotation outcome #6. At the end of the rotation, students are expected to discuss the role of each of these committees in the school and their impact on its educational processes.

### **Instructional Module**

Clerkship students create, repeatedly deliver (three times), and assess the learning value of learning activities in a course module. The module is delivered in either the P1 or P2 Professional Skills Development course for one week (three, three-hour class sessions). Since these courses are primarily conducted as small group, active learning sessions, methodologies usually include pre-assigned readings, mini-presentations, case studies, participant role-play, and class/group discussions. Preceptors provide each clerkship student with a predetermined topic. They then design appropriate instructional methodologies for the topic with the help of the preceptors. They create learning outcomes for the module, as well as design and conduct an assessment of the real/perceived learning value of the instructional activities. They also assess their students' assignments (grade and provide written feedback) produced by the instructional activities. During the first session that the instructional module is delivered, the clerkship students are videotaped for the purpose of self-assessment and subsequent improvement for the next two sessions. They have at least two but not more than four weeks to create their instructional modules. They develop a timeline to facilitate module completion and provide preceptors with progress updates. They then present a "dress rehearsal" of the instructional module to preceptors and/or other interested parties, at least one day prior to the first delivery of the module.

### **Observation/Facilitation/Instruction in Other Courses**

To observe and/or serve as a facilitator in faculty members' courses (other than the preceptors'), students attend other courses periodically. This provides them the opportunity to more critically analyze the teaching styles of other faculty members and learn different instructional methodologies. Examples of this activity include facilitating discussion groups in courses such as Introduction to Pharmacy, Pharmacy Law, and Humanistic Issues in Illness and Wellness, observing small group debates in an interdisciplinary Health Care Ethics course, observing active learning in large, lecture-based courses of Science Foundations I and Integrated Organ Systems III, and supervising P2 students as they conduct patient consultations at a publicly funded addiction recovery center as part of an experiential course.

### **Education-Related Project**

The purpose of completing an education-related project is to expose students to, and have them gain experience in, a project not directly related to teaching. Clerkship students select a project from a list of ideas submitted by numerous faculty members. The selection is done in coordination with the preceptors. They have the entire rotation to work on the project so that it is complete by the end of the rotation. They develop a timeline to facilitate completion of the project and provide the preceptors with progress updates. After its completion they then present a verbal or written synopsis of the project to the preceptors and/or other interested parties. Past examples of projects include designing and conducting an on-line student assessment of the Introduction to Pharmacy course, participating in and evaluating an Advanced Cardiac Life Support (ACLS) preparation course for health care professionals, conducting a survey to evaluate participants' perceptions of a Drug Information clerkship versus a Drug Information portfolio, and helping to design the school's representative poster for the 2001 AACP Annual Meeting.

### **Rotation Portfolio**

The purpose of having students compile a portfolio over the course of the rotation is threefold: (i) collect and present evidence to demonstrate achievement of rotation outcomes; (ii) create a "teaching portfolio;" and (iii) review all of their accomplishments achieved during the rotation. The portfolio can be completed in a number of ways, such as using an organized paper-based notebook or an electronic portfolio system. Clerkship students could potentially use these teaching portfolios — a professional, documented record of education/teaching related experiences and expertise — for residency, fellowship or job interviews. The portfolios include, but are not limited to a table of contents, an introduction, student's baseline expectations prior to the rotation, evidence of achievement of each outcome organized by outcome, and conclusion/reflections. One student who created her portfolio on a CD-rom included a video clip of her teaching as well as text-based links to other documents and sections on the CD.

Assessment of the portfolio is conducted formatively and summatively by the preceptors. The formative process includes students providing the preceptors with periodic progress reports and asking questions about the appropriateness of certain pieces of evidence for inclusion in their portfolios; in turn, the preceptors provide students with constructive comments toward completion of the portfolios. Summative assessment of the portfolio is completed by preceptors at the end of the rotation; determinations are made whether all criteria for completion of the portfolio have been met and about the professional appearance, organization, and writing quality of the portfolio. At this time, a standardized portfolio evaluation tool has not yet been developed.

### **Additional Rotation Activities**

In addition to all of the activities described above, there are optional activities in which clerkship students can participate during the rotation. Some students choose to attend faculty development workshops offered by the campus Office of Education. Others have created helpful learning tools for the first and second year students with whom they interact, such as a "therapeutics study guide" and "list of common sigs and medical abbreviations." These activities go beyond the expectations of the rotation.

**Table I Clerkship students' likes and dislikes about rotation**

<b>What single aspect of the rotation did you like most? Why?</b>	<b>What single aspect of the rotation did you dislike most? Why?</b>
<ul style="list-style-type: none"><li>• Everything! Having the opportunity to see and experience a teacher's point of view. Being a role model for the students.</li><li>• Assistance with P1 and P2 Skills because of the student interaction. I also liked analyzing the data from student assessments.</li><li>• I loved the interaction with the students and remembering that I was in their place not long ago. This helped me to try and bring them some relevancy to all the work they are doing now and show it will truly benefit them later on. Developing a module was invaluable (<i>i.e.</i>, writing outcomes, class time management, class discussion, writing a quiz, etc.)</li><li>• I felt very welcomed by both preceptors, as well as by the other faculty members and staff at this rotation site. I was treated with respect as a "junior faculty member," and also received tremendous guidance and support throughout the whole rotation. I also enjoyed the autonomy that was given. I had a large office with my own computer and printer, and greatly appreciated this! It definitely made the rotation even more enjoyable!</li><li>• My teaching module because it challenged me and pushed me to go places I had not been.</li></ul> <p>Other comments:</p> <ul style="list-style-type: none"><li>• This was an ideal setting to learn about the challenges of academia. Dr. Hammer and Dr. Paulsen are both innovative in their teaching styles. They work extremely hard and really care about providing a valuable education. They allowed me to be creative and in doing so learn from the challenges that came with it.</li><li>• Dr. Paulsen and Dr. Hammer are very knowledgeable in the area of pharmacy education. They allowed me the freedom to develop my own module in P1 Skills, but yet provided feedback to make it "fit"</li><li>• Thanks for everything!</li></ul>	<p>Grading students' work was very difficult. It was very time consuming and challenging to stay objective and to grade at the same "level" for so many students. Also, I found it difficult to provide adequate feedback to all students on assignments</p> <p>The rotation required a large amount of work which consisted of 10 – 15 contact hours (of teaching) each week, grading of assignments, weekly lecture planning, and also weekly readings and compilation of work for the rotation portfolio. Whew! It was demanding, but I realize that this is The typical workload of a faculty member!</p> <p>Down time in Skills class. Not all modules required our presence and we could have better used our time elsewhere when we were not needed in Skills.</p> <p>Having to stay in the Skills lab when we were not Needed</p> <p>Taking minutes of committee meetings, because it was taking minutes of committee meetings</p>

## RESULTS AND DISCUSSION

Although only five students have completed the clerkship thus far, all have found their six-week introduction to faculty life to be a valuable learning experience. The only formal tools that the preceptors have used thus far to have students assess the rotation is the standard evaluation form supplied by the school's Office of Experiential Education. Unfortunately, most of the items on this form do not apply to this rotation, but responses to two open-ended questions at the end of the form provided valuable information to the preceptors (Table I). Additionally, students' summaries and reflections of the clerkship in their portfolios have also provided the preceptors with insight as to what the students have accomplished and learned. All students have passed the rotation with "flying colors" and achieved the rotation outcomes beyond the expectations of the preceptors. Their success and encouragement has prompted additional students to participate in the rotation in upcoming semesters. It is most exciting when these clerkship students interact with first and second year students, and several of the latter have decided that they would like to participate in the rotation in their (P4) fourth year. The first and second year students have expressed their appreciation and enjoyment of having interacted with and been instructed by these clerkship students.

## REFLECTIONS AND IMPLICATIONS

This section describes the innovative nature of the clerkship, rationale for its implementation, successes and pitfalls, and rationale for planned modifications.

### Innovative Nature of the Clerkship

Although a number of schools offer clerkship and residency rotations in education/teaching, there are a few items in the rotation described in this paper that make it somewhat unique: 1) the high level of involvement in hands-on teaching experiences and educational service activities, 2) the emphasis on national pharmacy education through reading and discussion, and 3) the compilation of a comprehensive rotation portfolio. Fortunately for the preceptors, the students participating in this rotation have already successfully completed a course in Instructional Methods, which focuses primarily on creating objectives, handouts, slides, and delivering a formal presentation. Thus, the preceptors only need to provide some educational background and theory at the beginning of the rotation; much of what the students actually learn occurs through observation and participation in many types of courses. They also research, read and discover the history of pharmaceutical education, current influential organizations and other factors that impact the current and future delivery of pharmacy education. Additionally, having them participate in a number of educa-

tion-related committee meetings helps them see “the big picture” of how these committees support the educational processes of the school and its curricula. Lastly, the documentation of their rotation activities in a portfolio format with a comprehensive summative reflection develops their ability to organize and reflect on a set of activities - these skills are transferable to many different career paths.

### Rationale for Implementation

This elective clerkship was created to provide PharmD candidates with teaching and service experience as if they were junior faculty members. Participation in this clerkship is hoped to inspire them to pursue academia as a career path, as well as develop their appreciation for the teaching and service aspects of faculty life. Additionally, the practical skills learned in this rotation, especially those related to teaching/learning and creating a comprehensive portfolio should help them to be better professionals, practitioners, and educators in whatever career path they choose. Regardless of whether they choose to pursue a career in academia or not, a framework is set for developing future preceptors who fully comprehend the educational outcomes of the school’s curricular programs.

### Successes and Pitfalls

Although it is unknown at this time if any of the five participants will choose a career in academia, the preceptors feel that the six-week experience has had a profound impact on them thus far. These students now feel confident about delivering a quality learning experience - they have the skills to effectively create, administer, and assess activities they may develop. They have gained a broad appreciation for the rewards and challenges of the teaching and service aspects of faculty life and the complexities of pharmaceutical education. They have also demonstrated the capacity to create high quality, comprehensive portfolios of their work. These have been the greatest successes of the clerkship thus far. Additionally, the first and second year students with whom the clerkship students interact have benefited greatly. These early students enjoyed learning new concepts and skills from PharmD candidates and found the candidates’ teaching to be very effective. They enjoyed interacting with these “role models” and learning about what lies ahead for them in the curriculum, clerkship rotations, and pharmacy practice. This interaction may also aid the clerkship students to transition from student to faculty/ preceptor.

One of the areas that could be improved in this rotation is the formative assessment process of the portfolio. Currently, students are so busy in the clerkship that they usually compile their portfolios during the last week of the rotation. Unfortunately, this leaves the preceptors with little time to critically assess the students’ work and provide constructive feedback. Although the quality of the students’ portfolios has been exceptional thus far, future participants in the rotation may not always perform at a similar level. The system for portfolio development described in the syllabus reflects periodic formative assessment, but thus far it has been difficult to adhere to the timing of this system. The preceptors are working to devise better methods in which to increase their and the students’ adherence to those guidelines.

### Planned Modifications and Rationale

With continued success, consideration will be given to transforming this clerkship from an elective to required status for all PharmD candidates. If this were to occur, some major modifications would take place. Most obvious is the need for

more preceptors and “sites.” Additional faculty members could precept students and have students teach in their courses, observe others’ courses, and participate in their service activities. As an example, the faculty member who directs our post-graduate professional education programs (external PharmD and continuing education programs) could involve students in those aspects of pharmacy education. A few community preceptors could also be identified who work in education programs, whether they are the education of patients, health professionals, or others. It would also be important to create a set of standardized assessment instruments to evaluate student performance in these differing education rotations in order to ensure that all participants are achieving the outcomes of the rotation. To this end, the outcomes of the rotation may need to be modified for specific “practice sites,” or become more broad in nature so that they apply to many different experiences.

### CONCLUSION

Although much time and energy have been expended into the design, implementation and maintenance of this rotation, the preceptors feel that they are “doing the right thing” with regard to pharmacy education in the 21st century. They desire continued improvement of what has begun and involvement of additional faculty members and preceptors in the process. They also want to share their successes and pitfalls with national colleagues who are conducting or planning to implement similar endeavors. Finally, consistent collection of longitudinal data could help preceptors determine if these experiences are making a difference in pharmacy education and recruiting students to pursue careers in academia.

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## APPENDIX A. ROTATION SYLLABUS

### Elective Clerkship Rotation in Education 2000 - 2001

#### Primary Preceptors:

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**Disclaimer:** This syllabus and schedule are living, breathing documents and will be referred to throughout the rotation. The preceptors reserve the right to add, remove, and/or modify portions of it throughout the rotation. The integrative nature of this rotation lends itself to flexibility in scheduling activities. As uncomfortable as this is for students and preceptors, it is a necessary feature to maintain the quality of the rotation. Students, other involved faculty and staff will be notified immediately if/when changes are made.

**Prerequisites:** Successful completion of the Instructional Methods course (including proficiency in using MS Word, MS PowerPoint, the university email system and computer-based literature searching).

#### Required Materials:

Necessary preparation for all rotation activities  
Positive attitude and professional behavior  
Respect for self and others  
Willingness to learn  
Flexibility  
Student ID  
White lab coat  
Professional attire  
Internet access  
University email account  
Pager  
Calculator  
Calendar/daytimer

**Required Readings:** refer to weekly meeting schedule.

**Rotation Description:** This a 6-week, full time, elective rotation designed to introduce PharmD candidates to many aspects of pharmacy faculty life. Students will participate in a wide-variety of activities to expose them to the "teaching" side of pharmacy education as well as those external forces that impact the educational process. Additionally, students will gain a broad understanding of pharmacy education on a national as well as institutional level. Students will shadow faculty members as well as actively participate in the education of P1 and P2 PharmD students.

**Rotation Outcomes:** Upon completion of this rotation, the student is expected to be able to:

1. Discuss changes in pharmaceutical education over the last three decades,
2. Analyze the role of specific national associations that impact pharmacy education,
3. Identify, evaluate and discuss references and resources for pharmacy faculty to aid in their teaching,
4. Evaluate and discuss specific education journal articles of interest to the student,
5. Analyze a variety of instructional methodologies and assessments used by faculty members,
6. Participate in school committees and describe the committees' impact on the school's educational process,
7. Create and repeatedly deliver an instructional module,
8. Assess the learning value of that module or other instructional activity,
9. Complete and present an education-related project, and
10. Create a comprehensive portfolio to demonstrate achievement of rotation outcomes.

#### Educational Philosophies (aka "the world according to Drs. Hammer and Paulsen"):

This rotation was designed based on the assumptions that students want to learn about pharmacy education, will actively participate in learning activities, and work to achieve their potential. In turn, the preceptors, other involved faculty members and staff will create a learning environment to facilitate operationalization of this philosophy. This rotation is also based on the educational philosophies of mastery learning and assessment-as-learning to help students achieve rotation outcomes.

Mastery learning is demonstrated as individual students achieve the outcomes and competencies of a particular course or project. If students can demonstrate such achievement, then they earn the "grade" associated with that achievement. By contrast, courses that operate using a "norm-referenced" philosophy compare an individual student's achievement to other students' achievements and attempt to create a normalized distribution of students based on their level of achievement. Thus, many norm-referenced graded courses have bell-shaped distributions of students' grades while many mastery learning-graded courses may have large numbers of students on the higher end of the grading scale, similar to graduate-level courses.

Assessment-as-learning is a concept originally described by Alverno College in Milwaukee, Wisconsin. It incorporates the notion that feedback provided to students regarding their performance on a particular exercise, for example, helps them to determine their strengths and weaknesses in relation to that exercise so that they can improve performance when reassessed. The concept can also be interpreted to mean that the assessment methods associated with a particular course or project will "drive" the manner in which students learn - especially in a graded system. For example, if a course utilizes performance on knowledge-based exams as the primary method of assessment of student learning, then students can be expected to memorize and regurgitate the knowledge on which they are being tested. By contrast, if a course assesses students' learning using performance on knowledge-based exams in addition to writing papers, making oral presentations, or participating in class discussions, then students could be expected to memorize and regurgitate knowledge, write content relevant, grammatically correct papers, make effective oral presentations or actively participate in class discussions. In other words, students will usually perform in the manner in which they are incited.

#### Expectations for Students

**Time:** This is a 6-week full-time rotation. You will be working very closely with the preceptors and we expect you to be accessible at any time during our normal academic hours (7:30 - 5pm weekdays). Some days may begin before 7:30am and/or end after 5pm. You are expected to respond to student needs and come in early or remain longer than expected, just as you would for a patient. We will make every effort to keep the extended days to a minimum. We will let you know at our

earliest convenience when these situations would occur. We expect you to use your outside-scheduled-activity-time wisely in order to achieve rotation outcomes. For specific scheduled activities, refer to rotation calendar.

**Location:** Most of your time will be spent in the classroom as well as in meetings. You will have access to a computer workstation in room 361 (phone 315-0099). You will be issued a key for this room and will be expected to return the key at the end of the rotation. Since this room is primarily utilized by faculty members and workstudy students, they have first priority to use the computers and other equipment in the room. You will be expected to leave the room as you found it. You may not use any equipment or materials in the room without the consent of the preceptors.

**Communication:** When you are not with a preceptor, we expect to be able to contact you via university email, phone or pager. This implies that you wear your pager at all times.

Activities and other expectations: During this rotation, students will be involved in a variety of activities to help them achieve rotation outcomes. These activities include, but are not limited to:

- 1) Serve as an instructor for PI and P2 Professional Skills Development courses
- 2) Serve as a facilitator/assistant in other faculty members' courses (if applicable)
- 3) Attend, and take minutes of, selected meetings of various committee meetings including curriculum, assessment, course directors', committee on instructional technology, clerkship, education council, and postgraduate professional education
- 4) Work on a rotation-long project to meet outcome #9
- 5) Attend weekly "report" meetings with preceptors
- 6) Complete literature searches
- 7) Interact with staff and TAs

#### Policy Information

**Assessment Policy:** Assessment differs from evaluation. Assessment includes feedback which is used for the purpose of improving one's performance; evaluation is used to simply assign a grade or make a decision. In this rotation, assessors of your performance will include yourself, preceptors, students, and other faculty members and staff with whom you interact.

**Requirements for Passing This Rotation:** To successfully complete this rotation, students must:

- conduct themselves as junior faculty members and act professionally and responsibly in this role (e.g., professional attire, behavior, confidentiality of information, wearing pager, etc.)
- be punctual, prepared for, and actively engaged in all meetings, course activities and other commitments
- maintain a reasonable degree of flexibility within the context of daily activities
- conduct themselves as non-voting observers or note takers in school committee meetings
- actively participate in decision-making with preceptors
- achieve all rotation outcomes to the satisfaction of preceptors

Failure to meet these expectations will result in a grade of IF (Incomplete failure).

**Academic Dishonesty:** This rotation will follow policies and procedures as outlined in the "Student Ethics and Conduct Code" section in the Student Handbook. If a student is found to have compromised his/her academic integrity, he/she will be referred to the Office of Student Services for disciplinary action.

**Attendance Policy:** It is mandatory that students attend all scheduled sessions in order to achieve rotation outcomes (refer to rotation schedule). The preceptors realize, however, that certain extenuating circumstances may occur which would prevent attendance. This policy addresses those circumstances. Please read through this material carefully and direct any questions to the preceptors. It is the student's responsibility to comply these policies, i.e., preceptors will not "track

you down" to find out why you were absent.

**Unexcused Absence:** Any unexcused absence will result in an Incomplete Failure (IF) for the rotation.

**Excused Absence:** Excused absences, anticipated and unanticipated, are based upon extenuating circumstances beyond the control of the student. Four areas fall into the category of extenuating circumstance: 1) medical necessity; 2) death of a family member; 3) pre-approved professional activities or 4) extenuating circumstances unforeseen by this policy (requires the consensus of the preceptors).

1. Medical Necessity refers to unpredictable or serious illness of the student and his/her immediate family. Documentation such as a medical statement from the patient's physician may be required at the request of the preceptors. Routine office visits within the control of the student are not considered extenuating and should be scheduled around the student's rotation activities.
2. Death of a family member includes death of spouse, children or significant others within the immediate family as well as parents, grandparents and siblings of the student and/or spouse.
3. Pre-approved professional activities constitute an extenuating circumstance when the student and/or student organization has followed the appropriate notification procedures outlined in the School of Pharmacy Bulletin. It is the sole responsibility of the student to inform the preceptors of his/her planned absence at least one month in advance, preferably at the start of the rotation. Documentation of attendance at the professional activity is required.
4. NONE OF THE ABOVE: contact one of the preceptors if your circumstance does not fall into one of the above categories. The decision of the preceptors is final.

**Procedure for Notification:** It is the sole responsibility of the student to notify the preceptors of his/her absence. Once the student has met with the preceptors to discuss the absence, the student will email a summary of the discussion to the preceptors to ensure the student's understanding. Failure to do this and/or follow the procedures below will result in an unexcused absence.

**Anticipated Absences:** The student must notify the preceptors of anticipated absence as early as possible prior to absence. If circumstances prevent the student from notifying the preceptors, arrange for another individual to do it for you. Messages must include the student's name and contact information.

**Unanticipated Absences:** Contact the preceptors as soon as you return to complete the procedure for notification.

Exceptions to these procedures will be made only under truly extraordinary circumstances as deemed appropriate by the preceptors and/or the Scholastic Advancement and Appeals Committee. Students may initiate an appeals process through the Scholastic Advancement and Appeals Committee (outlined in the Student Handbook) for any circumstances they feel are extenuating and are not covered by this policy.

**Dress Code for Meetings and In-class Activities:** Students and preceptors will be expected to dress in a professional manner. The preceptors and students are responsible for maintaining compliance with the dress code policy. Students not wearing clothing deemed appropriate by the preceptors will be warned at the first offense; second offense of this policy will result in the student being asked to leave and change into appropriate attire. The following are the guidelines for appropriate dress:

**Male Students:** White lab coat\* (long sleeves required, non-UCHSC logos and badges not permitted), dress slacks, a collared shirt and tie.

**Female Students:** White lab coat\* (long sleeves required, non-UCHSC logos and badges not permitted) skirt, dress (no more than 4 inches above the knee) or dress slacks, and a blouse or sweater. Jean skirts or dress is permitted.

**Inappropriate Dress Includes:** baseball caps, tight-fitting leggings/stirrup pants, spandex, any kind or color of jeans, shorts, tee-shirts, any type of sweat pants or sweatshirts, short skirts or revealing blouses, halter tops, tank tops, midriffs, back-less tops or fatigues.

\*White lab coats are required to be worn only during Professional Skills course sessions.

### Criteria for Instructional Module

**Description:** The purpose of the instructional module is to have the student create, repeatedly deliver, and assess the learning value of a teaching activity(s). The module will be delivered in either the P1 or P2 Professional Skills Development courses for one week (three, three-hour sessions). Since the topics for these courses has already been predetermined, the preceptors will provide the student with the general topic to be covered in the student's assigned week; students will then select appropriate instructional methodologies for the topic with the help of the preceptors. The student will create learning outcomes for the module, as well as design and conduct an assessment of the real/perceived learning value of the instructional activities. The student will be expected to objectively assess any assignments produced by the instructional activities. During the first session that the instructional module is delivered, the student will be videotaped for the purpose of self-assessment and subsequent improvement for the next two sessions. The student will have at least two, but not more than four, weeks to create their instructional module. The student will be expected to develop a timeline to facilitate completion of the instructional module and provide the preceptors with progress updates. The student will also be expected to present a "dress rehearsal" of the instructional module to the preceptors and/or other interested parties, at least one day prior to the first delivery of the module.

### Previous Modules with Corresponding Activities Conducted by Clerkship Students

- Drug-related Problems (for P1s):
  - pre-assigned readings
  - mini-lecture
  - interactive discussion of examples
  - student groups role-play assigned DRPs while classmates identify the DRP; worksheet completed in conjunction with this activity
  - student assessment of perceived value of instructional activities
- Medication Errors (for P1s):
  - pre-assigned readings
  - mini-lecture
  - Dateline™ video
  - discussion of video and readings
  - sound-alike/look-alike activity
  - student mini-presentations of SA/LA activity
  - mini-quiz on lecture and readings
  - student assessment of perceived value of instructional activities
- Medication Use in Pregnancy (for P1s):s)
  - pre-assigned readings
  - discussion/questions of readings
  - student groups given cases to work on and present to classmates; facilitator then asks group questions
  - large group discussion of what questions to ask a pregnant patient before recommending an OTC; observe role-play with pregnant patient and facilitator as pharmacist
    - mini-quiz on relevant information
    - student self-assessment of their group participation skills
    - student assessment of perceived value of instructional activities
- GI OTC Agents (for P2s):
  - mini-lecture
  - student groups look up info to complete comprehensive

- chart about GI OTCs
- each group creates a patient case for their assigned GI problem
- each group presents the basics of their case to the rest of the class; other groups ask one question each (rotating among groups) until a group feels they have enough information to make a recommendation - the winning group for each case gets a prize, as does the most-winning group
- student self-assessment of their group participation skills
- student assessment of perceived value of instructional activities
- Principles of Compounding (for P1s):
  - pre-assigned readings
  - mini-lecture
  - completion of group compounding worksheet and preparation of product in pairs
  - discussion of worksheet and readings
  - graded worksheet; perceived value survey at end of module

### Criteria for Rotation Project

**Description:** The purpose of the project is to expose the student to, and have her/him gain experience in, an educational project not directly related to teaching. The student will select and complete a unique education-related project. This selection will be done in coordination with the preceptors. The student will have the entire rotation to work on the project so that it is complete by the end of the rotation. The student will be expected to develop a timeline to facilitate completion of the project and provide the preceptors with progress updates. The student will also be expected to present a verbal or written synopsis of the project to the preceptors and/or other interested parties.

### Potential Project List

- educational book review (we have a mini-library from which to choose)
- portion of educational research project with a faculty member (e.g., data entry, analysis, reporting)
  - collection of data from students, alumni and faculty about value of DI portfolio vs DI rotation (2nd half of project)
  - analysis of data from students' participating in Arapahoe House experience
- provide resources for a specific committee (e.g., info about admissions practices)
- creating course outcomes with faculty members for future courses (i.e., help design year 3 of the new curriculum!)
- revise and/or map general and pharmacy-specific curricular outcomes
- select an instructional or assessment methodology and develop a literature library that faculty members can use as a resource (e.g., how to spice up lectures with active learning techniques)
- others?

### Criteria for Rotation Portfolio

**Description:** The student will compile a portfolio over the course of the rotation to demonstrate achievement of rotation outcomes. This portfolio can be completed in a number of ways, such as using an organized notebook or an electronic portfolio system. The student may be able to use the portfolio in the future as a "teaching portfolio" - a professional, documented record of education/teaching related experiences and expertise.

### Contents

- The portfolio should include, but is not limited to, the following:
- Student's baseline expectations prior to the rotation
  - Table of Contents
  - Introduction: previews the purpose and contents of the portfolio
  - Evidence of achievement of each outcome, organized by each outcome:
    - documentation, assignments, reflections, and other pieces of evidence that demonstrate development toward and achievement of each outcome. Some pieces of evidence can

most likely be used show achievement of more than one outcome.

- Conclusion: a summary and reflection of what the student has learned and accomplished over the course of the rotation, including whether or not original expectations were met.

**Assessment:** The portfolio will be formatively and summatively assessed by the preceptors. This means that the student will provide the preceptors periodic progress reports toward completion of the portfolio. This formative process can include asking the preceptors questions about the appropriateness of certain pieces of evidence for inclusion in the portfolio. Summative assessment of the portfolio will be completed by preceptors at the end of the rotation - they will determine if all criteria for completion of the portfolio have been met as well as the professional appearance, organization, and writing quality of the portfolio.

#### Criteria and Expectations for Weekly Meetings

**Description:** The student will have a prescribed meeting time with the preceptors each week. The purpose of these meetings is to have a regular "journal club," discuss progress on student's achievement of rotation outcomes, and to work through other rotation-related issues as they arise. The student will be expected to be prepared for each meeting and to lead those meetings (with the exception of the initial meeting). "Packets" of readings will be provided to the student in the student's notebook to be received at the initial meeting.

#### Initial Meeting, Day 1

##### DISCUSS:

- Student and preceptor expectations for rotation
- Syllabus
  - ✓ Calendar
  - ✓ Assigned instructional activity
  - ✓ Independent project
  - ✓ Outcomes/Portfolio
  - ✓ Weekly meetings
    - => Assigned readings
- Time management
- Office space/computer/copy charges, etc.

#### Week 1

- Be prepared to discuss assigned readings packet #1
- Discuss independent project selection
- Discuss potential instructional methodologies for Skills module

#### Week 2

- Be prepared to discuss assigned readings packet #2
- Discuss timeline and initial draft proposal for independent project
- Discuss timeline and instructional method update for Skills module
- Student is to find an "educational article of interest" #1 to be discussed at the next preceptor meeting. Preceptors should receive the article for prior review by the Wednesday of Week 3

#### Week 3

- Be prepared to discuss "educational article of interest" #1
- Prepare and present an independent project update
- Discuss progression of portfolio
- Present an update on the Skills module
- Student is to find an "educational article of interest" #2 to be discussed at the next preceptor meeting
- Preceptors should receive the article for prior review by the Wednesday of Week 4
- Mid-rotation evaluation

#### Week 4

- Be prepared to discuss "educational article of interest" #2
- Prepare and present an independent project update (schedule a room and equipment for faculty presentation)

- Discuss progression of portfolio
- Present Skills module to preceptors

#### Week 5

- Deliver Skills module
- Prepare and present an independent project update
- Discuss progression of portfolio

#### Week 6

- Present final independent project
- Present final portfolio
- Final student/faculty evaluation

### STATEMENT OF UNDERSTANDING

I have thoroughly read the rotation syllabus for the Elective Clerkship Rotation in Education. Upon completion of this reading I clearly understand and therefore have no questions concerning the rotation intent, content, policies, assessment structure or dress code contained within this document. I understand that this document is an agreement between the preceptors and student and both parties agree to abide by the statements held within this document.

If questions arise as the rotation progresses, I clearly understand that it is my responsibility to ask the preceptors for clarification.

Print Name \_\_\_\_\_  
Sign Name \_\_\_\_\_

I have thoroughly read the rotation syllabus for the Elective Clerkship Rotation in Education. Upon completion of this reading I have questions regarding one of the following items: the rotation intent, content, policies, assessment structure or dress code contained within this document. I have listed my questions below and request further clarification.

Print name \_\_\_\_\_  
Sign Name \_\_\_\_\_

### APPENDIX B. EXAMPLE WEEK OF ROTATION CALENDAR FOR TWO STUDENTS (MS AND NM)

#### MARCH 5

- MS "dress rehearsal" in PCLC, 9 - 11am
- P2 Skills 12:45 - 4pm

#### MARCH 6

- P1 Skills 7:45 - 11am P2
- Skills 12:45 - 4pm
- CIT mtg room 402, 1:30-3pm

#### MARCH 7

- P1 Skills 7:45 - 11am P2
- Weekly preceptor mtg 11:15 - 12:30, room 352, (NM)
- Arapahoe House w/ SP, 1 - 4pm
- Ethics course, 3 - 5pm, Denison

#### MARCH 8

- P1 Skills 7:45-11am
- Clerkship committee, 3 - 4pm, room 402

#### MARCH 9

- CC mtg room 402, 8 - 10am
- NM "dress rehearsal" in PCLC, 10:30 - 12:30
- P2 Skills 12:45-4pm

## APPENDIX C. EXAMPLES OF ASSIGNED READINGS FOR WEEK 1 OF THE ROTATION

### Elective Education Rotation Readings: Week 1

#### Part I:

Purkerson Hammer, D. and Paulsen, S.M. "Strategies and processes to design an integrated, longitudinal professional skills development course sequence," *Am. J. Pharm. Educ.*, 65, 77-85(2001).

Syllabi for PHRD 3100 and PHRD 4100

#### Part II:

Smith, RE. "Unleash the greatness," *Am. J. Pharm.Educ.*, 63(4), 436-441, 1999.

Schumacher, GE. "On reaching beyond your grasp," *Am. J. Pharm.Educ.*, 63, 441-442(1999).

Barr, RB, Tagg, J. "From teaching to learning - A new paradigm for undergraduate education," *Change*, Nov/Dec, 13 - 25, 1995.

American Association of Higher Education, "Faculty Inventory: Seven Principles for Good Practice in Undergraduate Education," The Johnson Foundation, Racine WI (1989).

Leblanc, R. "Good teaching: the top ten requirements," *Teach. Prof.*, 12(6), 7,(1998).