

Pilot of Integrated Pharmaceutical and Clinical Sciences

Elective Course to Prepare for Curriculum Transformation

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Program Background:

The UCSF School of Pharmacy is undergoing curriculum transformation with a new PharmD degree curriculum to launch in July 2018. A key feature of the new curriculum will require teaching students to embrace an “inquiry habit of mind” as they access and incorporate new types of knowledge that typify the rapidly changing landscape of science discovery and apply that new knowledge to contemporary clinical practice.

In advance of the new curriculum, the school initiated a series of electives entitled “*Seminars in Emerging Science and Practice in Therapeutics*” to explore the challenges and develop feasible solutions when faced with merging the basic and clinical sciences in the classroom. These courses were designed to expose students to a diversity of scientific perspectives, drawing from six domains of science (**Figure 1**).

Methods:

Students from all of the health professions programs (e.g. medicine, dentistry, nursing, and physical therapy) were eligible to enroll in the courses. Faculty were selected both within UCSF and industry who lead cutting edge research relevant to disease and therapeutics topics and students participated in facilitated small group discussions to synthesize and integrate aspects of the six domains of science. (**Figure 2**). The electives encouraged students to identify the strengths and weaknesses of health care, where further research is needed, and to think critically about translational applications of the research.

Course objectives included the following:

- Identify and describe an integrated picture of some of the many areas of healthcare sciences involved in studying, diagnosing, and treating healthcare problems associated with the series topic.
- Read and understand review articles and introductory literature in the topic area from the 2-4 domains of science that the student think important to address challenges presented by discussion cases.
- Synthesize and discuss the current strengths and weaknesses of health care in the topic area and identify where further research is needed.
- Identify potential opportunities for translational applications that could emerge from collaboration between biomedical and clinical sciences.
- Actively participate and contribute during small group discussions.
- Develop and present a short case-based presentation viewed through one of the UCSF Domains of Science.

Domains of Science



Fig 1

Student Comments:

“ This course wouldn’t work as well if it were taught by a single professor presenting other people’s work. The fact that we got to hear directly from the researchers themselves made it very powerful.”

“ The guest lecturers are fantastic. UCSF has such a diverse community of individuals here who are making significant contributions to science and tech- cutting-edge discoveries are happening pretty much in the building next door.”

“ The discussion sections are a good opportunity to explore/apply our knowledge in depth.”

” The speakers are all such fascinating researchers and people. Each speaker was truly engaging and made their highly complex work relatable to all pharmacy students.”

Example Topic Structure

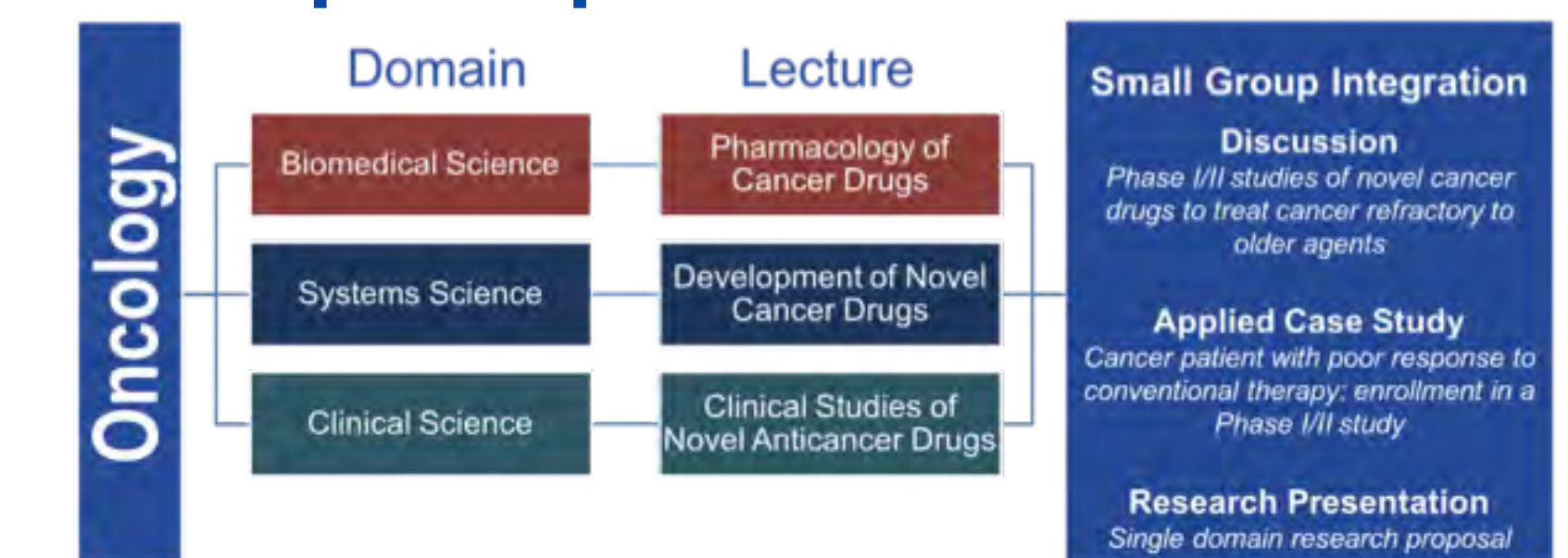


Fig 2

Strengths:

- Brought speakers together with complementary expertise that spanned basic, translational and clinical research. The speakers (organized in groups of three) each addressed a particular inquiry aspect related to an anchor clinical case.
- Speakers engaged students with inquiry questions as they presented their cutting edge science.
- Students learned that multiple approaches with differing expertise are needed to solve health problems.
- The small class size for this elective (~30 students) allowed strong student engagement with each speaker.

Limitations:

- Expanding to full class of ~130 will decrease direct engagement of students with speakers.
- Small group facilitators initially need training to engage students in analyzing and reasoning rather than simply teaching.

Conclusions & Future Directions:

- Include some frontier seminars for full class (96-130) in new curriculum.
- Design students-led small group (12 students) case discussions, debates and journal article discussions that engage students in exploring cutting edge research in different domains to solve health problems and identify gaps in knowledge.