



## Dueling Professors: Integrated Education and Faculty Development through “Double Acts”

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### Background

ACPE requires that every “graduate is able to develop, integrate, and apply knowledge from the foundational sciences to evaluate the scientific literature, explain drug action, solve therapeutic problems, and advance population health and patient-centered care.”<sup>1</sup> We plan to teach using an integrated approach where different disciplines are taught within a module, all applied to the same disease state<sup>2</sup>. However, this approach is sub-optimal if faculty do not coordinate effectively.

A major focus of faculty development<sup>3</sup> at the University of Maryland School of Pharmacy is reducing silos and increasing interactions between faculty in different disciplines. The authors (department chairs) envisioned that both could be achieved through a didactic course “Applied Pharmaceutical Sciences” (APS).

### Methods

Teams of faculty (one basic and/or population science and one clinical) were selected for these “double acts”, to interact in the classroom about a topic that integrates science and clinical practice. Topics included medicinal chemistry, pharmaceuticals, and pharmacokinetics – all applied to a specific disease state (pain, cardiology, cancer, microbiology).

Faculty were matched by area of expertise as well as teaching style. Faculty were observed by the authors at least once, and selected by the authors (department chairs) on the basis of ability to teach without preparation and embrace an interactive style. As the course progressed over four years, additional faculty were introduced to the style to maximize impact on faculty development.

The overarching pedagogical principle for the course was that the “double acts” could not take the approach of two mini-lectures. The faculty were given suggestions for how to achieve the objective:

- **asking questions of each other**
- **making statements that the other disagreed with**
- **playing “devil’s advocate”**

It was also strongly suggested that faculty plan ahead of the lecture a general script that they were to follow as a team.

### Objective

The objective was to design a course that demonstrates integration and application of scientific principles to solve a therapeutic dilemma, and enhances interaction of faculty across disciplines.

Drug Delivery/ Targeting/ Decision Science/ Health Policy "Nanomedicine and Polymeric"	Roffman, David Swaan, Peter
Treatment of COPD: How Drug Delivery Devices, Bioequivalence Issues, Personal Behavior and Clinical Condition Blur at the Point of Care	Beardsley, Robert Dalby, Richard Tsoukleris, Mona
Drug Design "Novel Mechanisms for Treatment of Breast Cancer"	Coop, Andy Trovato, James
Novel Pediatric Targets	Morgan, Jill Raman, C.S.
You Are What You Eat: The Gut Microbiome and Disease	Hynicka, Lauren Shapiro, Paul
Drug Liberation from Formulation	Ivaturi, Vijay Polli, James

### Results

#### Student feedback:

- **93%** agree that *“I was challenged to apply the information in this course”* and **87%** agree that *“I understand how the material in this course contributed to my professional development”*
- *“The interaction between the professors made the material so much more interesting since they often played the devil’s advocate to get us to think”*
- *“Unique delivery of the course sets it apart from others at UMB”*

#### Faculty feedback:

- **89%** agree that *“As a result of my participation in APS, I am better able to teach with other pharmacy disciplines to explore science/therapeutic issues that are commonly encountered in the management of therapeutic issues in patient care”*
- **58%** agree that *“as a result of my participation in APS, I am better able to tolerate differences, misunderstandings and shortcomings in other pharmacy disciplines.”* The other 42% stated they already worked well with other disciplines.

### Implications

Team teaching is a straightforward approach to reinforce the integration of scientific principles in clinical decision making, and can be replicated in other courses in the PharmD curriculum. In addition, the approach serves as a novel development tool through “faculty active learning.”

Faculty participants enjoyed interactions with other disciplines, became less uncomfortable displaying their weaknesses in knowledge in front of their peers, and developed greater understanding of, and respect for, other disciplines.

This method of faculty development included new and senior faculty alike, and has had broad impact in the School:

- **Increased confidence in working with other disciplines**
- **Enhanced interactions between departments**
- **Improved collegiality in standing committee meetings and other interactions**

The success and popularity of the course (by faculty and students) has led to its elimination as a stand-alone course, and the approach of “double acts” has been incorporated into all basic science courses.

#### Expanded examples:



**Narcotics and constipation:** Mary Lynn McPherson, PharmD, BCPS, CPE and Andy Coop, PhD. Clinical and basic science aspects of palliative care, including current treatments for opioid-induced constipation, and basic science behind peripheral antagonists



**Novel targets for chronic neonatal lung disease:** Jill Morgan, PharmD, BCPS, and C.S. Raman, PhD. Clinical and basic science aspects of benefits and limitations of current treatments, and appreciate the utility and mechanisms of cell-based therapies for BPD.

#### References:

1. ACPE Standards 2016, Key Element 1.1. Foundational Knowledge
2. Kolluru et al., A Multi-Instructor, Team-Based, Active-Learning Exercise to Integrate Basic and Clinical Sciences Content . AJPE, 2012, 76, 33
3. Guglielmo et al, A Critical Appraisal of and Recommendations for Faculty Development . AJPE, 2011, 75, 122