Promoting a Transdisciplinary Educational Environment

Andrew C. Comrie, Ph.D.
Senior VP for Academic Affairs & Provost

Geography & Development; Atmospheric Sciences; Public Health;
Arid Lands; Entomology & Insect Sciences; Remote Sensing & Spatial Analysis; Statistics;
Promoting a Transdisciplinary Educational Environment

- UA has long been a leader in interdisciplinary and multi-disciplinary research and education

- **Transdisciplinary**: problem-oriented, involve all relevant parties, improve ability to solve challenges facing society
  - **Interdisciplinary**: combining disciplines → new field

- How to provide a University environment that nurtures and supports transdisciplinary thinking in its faculty and students?

- Thoughts from the UA experience
UA's Interdisciplinary Tradition

- Not just sciences, social sciences & stakeholders too
  - Non-academics
  - Citizen science
Pasteur's Quadrant

- Stokes, 1997
Pasteur's Quadrant

- **Quest for fundamental understanding?**
  - High
  - Low

- **Consideration of use?**
  - Low
  - High

- **BOHR QUADRANT**
  - Pure basic research

- **PASTEUR QUADRANT**
  - Use-inspired basic research

- **EDISON QUADRANT**
  - Applied research
Also known as...

- Translational science (from health sciences)
- Stakeholder-driven science
- Use-inspired science, etc.
Educational Environment

• GIDPs

• All graduate dissertation committees w/ minor members
• Inter/trans-disciplinary seminar courses
• Common thread: inter/trans-disciplinary problem-solving

• Undergraduate: recent advances in active & problem-based learning, collaborative classrooms, gamification
Faculty Institutional Environment

- Changes to promotion and tenure guidelines
  - Example: patents, licenses
  - A tough challenge: local department culture change

- Central Research Office (ORD) support for large and multi-PI/institution projects
  - Research Development Services
Challenges to Overcome

• Disciplinary superiority complexes
  • "My work is more important than your work"

• Time
  • To learn and develop a common language and understand what drives the other discipline/paradigm

‘Culture eats strategy for breakfast’
- Peter Drucker
A possible model?

- IPEP: from the health sciences
  - Doctors, nurses, technicians etc. work together in practice
  - Why not educate and train them in an integrated way

- What would Environmental IPEP look like?
Thank you
Your thoughts & comments?