Science Entrepreneurship Programs
at Case Western Reserve University

REEE
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Agenda

• The model: the Physics Entrepreneurship Program at CWRU (2000)
• Expansion to other sciences
  – Chemistry (2003)
Physics Gets Down to Business

• A 2-year Master’s Program
• Program provides training and real-world experience to students with a background in physics and a vision for new and growing ventures
• The goal: physicists who are empowered as entrepreneurs, and who have the skills to start new high-tech ventures and grow them successfully
How the Program came to be

• We listened carefully to
  – Alumni
  – Potential partners outside academia
  – Potential partners inside academia
    • Entrepreneurship Program at Weatherhead School of Management (Bob Hisrich)
The Right Place at the Right Time

- CWRU Physics Department
- Weatherhead School of Management
- Case Western Reserve University
- Cleveland
Financial Support

• Bequest of Robert Stieglitz
• National Collegiate Inventors and Innovators Alliance
• Coleman Foundation
• Alfred P. Sloan Foundation
• Ohio Technology Action Fund
• CWRU
Initial External Advisory Board

- Frank E. Mosier (Chairman)
  - Former President, BP America
- Christopher M. Coburn
  - Executive Director, CCF Innovations
- Joseph P. Keithley
  - Chairman, President & CEO, Keithley Instruments
- David Morgenthaler
  - Morgenthaler Ventures
- Richard Stieglitz
  - President, RGS Associates
- Juris Sulcs
  - Director, Corporate Technology Development, Venture Lighting International
How do you structure a program to empower scientists as entrepreneurs?

- Lean and Flexible Curriculum:
  - Modern Physics for Innovation I & II
  - New Venture Creation
  - Technology Entrepreneurship
  - Technical Elective
  - Restricted Elective
Grounded in the real world

9 credit Master’s thesis with technical content in an entrepreneurial context
* Through intrapreneurial internship
  (10 – 20 months, ~ half time)

* Through starting a new venture

Thesis committee includes faculty from Physics & Entrepreneurship, and provides continuous oversight (involvement)
Building Networks

• Physics Entrepreneurship Seminar Series:
  – Affords students regular connection with entrepreneurs, scientists, venture capitalists and experts in fields such as intellectual property
  – Attracts significant audience from the Greater Cleveland Entrepreneurial Community

• Graduates deeply committed to the program
  – “Entrepreneurship Boot Camp”
- Surprising Demographics
- For every student, a fascinating story!
Intrapreneurship examples:

- GENVAC Aerospace
- USA Instruments
- Advanced Lighting
- Alcoa Wheel and Forged Products
Growth

• Expansion of model to the other sciences
  – Chemistry   (2003)

• Each program will start ~5 new students per year, and grow to 10-20/year
Challenges

• A variety of challenges associated with scaling the programs

• Making sure that necessary infrastructure is in place as the programs grow
  – FastStart, LLC

• Changing the culture of the sciences
Questions?

• For additional details, developments, press coverage, etc. see handouts, and our web sites:
  – http://pep.cwru.edu
  – http://sep.cwru.edu