Innovative Models for Graduate Education at the University of Oregon

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The Graduate Internship Program

UO program partners with industry to provide:

- Focused course/lab work in chosen area of study
  - semi-conductor/PV materials, polymers, organic synthesis, optical materials, biotechnology

- 9-month work experience

- Master’s degree in chemistry or applied physics

- Professional skills to build a career:
  - leadership, problem-solving, team work, networking, resume writing and interviewing

Curriculum designed in collaboration with industry

A mutually beneficial partnership

- Companies get to “interview” for nine months
- Students get hands-on experience in industry
- Faculty learn industry needs (training & research problems)
• **A 5-Year, $20M Phase 2 NSF Center for Chemical Innovation**
  – *Mission*: To conduct curiosity-driven and use-inspired research to enhance the green chemistry toolbox with new methods and new techniques that will advance the scientific enterprise and transform the next generation of products
  – *From NSF*: “Innovation - translation or transfer of basic research results into social or economic benefit.”

• **Graduate Workshops** to enhance career opportunities
  – Entrepreneurship, project management, ethics, teamwork, mentoring
  – Proposal writing, scientific writing, analytical methods, interviewing

http://sustainablematerialschemistry.org/
CSMC: SUSTAINABLE MATERIALS CHEMISTRY

- INNOVATION
- CLUSTERS / INKS
- FILMS
- PATTERNS
Established Industrial Partners Program

- Sponsored first outreach event in during Phase 1 (Jan. 2010) with > 65 industrial participants
Innovation in Graduate Education

Guiding Belief

CSMC will derive the greatest value from its students and postdocs by helping them to define success on their own terms and helping them to achieve it as fully and as quickly as possible.
CSMC Selected Education Program Elements

• Established a new 4+1 BS/MS option for undergraduates
  – Junior year internships in industry
• Internships for Ph.D. students
• Transitional fellowships from Internship Program
• CSMC graduate-level “immersion” lab
• Graduate workshops for career development
  – Entrepreneurship, project management, ethics, mentoring, proposal writing, scientific writing
• Industry-sponsored research/company employees embedded in CSMC labs
**CSMC Innovation Program Elements**

- **Workshops and Advising:** Partnership with NCIIA
  Judy Giordan, judy@jgiordan.com
  - market focus and research translation
  - personal and team development
  - 3 workshops: Lens of the Market, InnovationLab, Advising Intensive

- **Startup Company Experience (ONAMI)**
  - Internships in ONAMI gap fund companies
    - Approximately five per year available

- **Commercialization Gap Funding (ONAMI)**
  - What, and who, will be the next CSMC spinouts?

NCIIA contact: Judy Giordan – judy@jgiordan.com
• **WHAT is Lens of the Market:** Educational workshop to help students and faculty learn the basic concepts and vocabulary for translating research into commercial innovations *and* gain the insights into the role you want to play in the process!

• **NO PRIOR EXPERIENCE** in technology commercialization is required! All that is needed is the research you are working on – we use that as the basis!

InnovationLab Work Schedule

- Define CSMC Innovations
- Define market/application pairs from CSMC Innovations
- Select STAR market/app pairs for next step detailed analysis

• Develop two key elements of a Business Plan for each STAR selected market/application pair:
  • Market Analysis
  • R&D Plan

June 12/13: Go/No-Go decision for market/app pairs

Next step: Advising Intensives: Develop a Business Plan for the GO PAIRS

June 12/13: Go/No-Go decision for market/app pairs
Advising Intensive builds a Business Plan and culminates in...

- Presentation to a group of investors
- Definition of SBIR alignment and drafting an SBIR/STTR proposal for internal review.
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| Duration:                                 | 1 day              | 3-6 months     | 6 - 12 months      |

CSMC
Fluorescent sensors enabling precision agriculture


Calden Carroll
President

Darren Johnson
Co-PI & Science Adviser: Mike Haley
Business Mentor: Bruce Branchaud

Augie Sick
Business Adviser, Entrepreneur-in-Residence