Educational Needs for Application of Climate Information

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Educational Needs (1)

• What is the status of current education for undergrad/grad/K-12 related to climate, agr. & nat. resources? Gaps?
  – Missing the holistic course, that puts together the basic pieces of the whole climate change issues for undergraduates
  – Lack of climate change courses for graduate students (need theory/technical for them)
  – Policy/applied courses vs (mechanism/theory)?
  – Cross-training or “good citizen” science courses
  – Can we stay out of the “politics” of climate and still discuss policy?
Educational Needs (2)

• How do we prepare students for climate-related issues with conseq to agr & nat resources?
  – Some have emphasis on phys & quant (FSU)
  – Resistance to changing courses (can faculty and admin adjust and implement?)

• Students are finding jobs in areas closer to climate and policy (NGOs, companies)
  – More climate science PhDs than jobs?
  – Columbia Univ MS program for climate/society
  – Climate modelers need physics/math. Too much fluff.
Educational Needs (3)

• Need to create collaborations for teaching courses across universities in era of distance education
  – Example: UF student taking a course from FSU?
  – Major barriers: Credit to faculty for teaching outside of his university. Or student getting credit for course taken outside. Resources for curriculum development.
  – UF’s Interdisciplinary Major students: Departments dislike, don’t count for “departmental” credit.

• Need to work with university presidents & provosts & chairs to share/give credit/facilitate.
Educational Needs (4)

• What new areas (jobs) should we be training students for? What courses needed?
  – AMS meteorologists need some climate background
  – Economics/industry
  – Risk/insurance/actuarial

• How should climate change education programs balance issues related to local/regional impacts versus global impacts, especially differential effect on industrial vs developing countries
  – Yes, cover both. Students need math/biol toolkit
  – Climate signals are world-wide, prices of oil/food
  – Students want both, some international & some local. Engage with local service/learning course with city/district/industry.
Educational Needs (5)

- Examples of successful educational programs that can be models to guide new programs
  - Service/learning course with city/district: water supplies and sustainability (USF/Clearwater)
  - Climate change course for undergrad (FSU)
  - Northern Illinois Univ -Design courses that train in climate and atmospheric sciences: problem solving, sustainability/ adaptation/ mitigation, climate engineering.
  - Columbia Univ MS program for climate/society
Educational Needs (6)

• Contrasts on education in global climate change
  – Tim Wheeler’s vs. Mark Cane’s
  – Science-heavy 4yr? Vs. Social sci focus 1yr
  – Professional options vs. Policy/Mgt
  – 1-year policy-course, good to expose engineers to policy side
Educational Needs (7)

- Regional approaches for cooperation to increase effectiveness of educational programs on climate, agr & nat resources
  - Share courses (send students short-term to other institution) or joint degrees (Reading & other)
  - Distance ed courses from anywhere in world
    - UF limits to 6 hr credit from elsewhere
    - Can we list same course for credit at UF?
    - Utah State-Ohio State (GIS), Iowa State (met course), Miss State (broadcast AMS)
  - Intensive 2-week course on specific topic (DSSAT course example)
  - Evening courses for K-12 (comm college, summer certifications)
Educational Needs (8)

• Regional approaches for cooperation to increase effectiveness of educational programs on climate, agr & nat resources

• Alternative Programs (than DE or University)
  – Re-usable “learning” modules (pre-recorded lectures)
  – Intensive 2-week short courses
  – Evening courses
  – Workshops at professional/national meetings
  – “Use of Tools” courses (res(extension)
  – Games for K-12
  – (Make it profitable for teachers & students)
Educational Needs (9)

• Who are the stakeholders for CIMR recommendations on climate education? How to deliver?
  – Professional organizations
  – Curriculum comm at Depts/Deans/admin
  – K-12 teacher organizations
  – State DOE/legislative committees
  – NGO/Non-profit: “science into sound bits”
  – Student-training, scientist-OJT, meteorologists, government policy people
  – Survey stakeholders: What are the needs?
Educational Needs (10)

• What are 1-5 yr recommendations on climate education needs to stakeholders, e.g. univ admin, state & fed agencies, other
  – Re-format courses, RLO (pre-recorded lectures).
  – Identify gaps in University programs
  – Identify available DE courses, short-courses, and regular courses (other universities that give desired content)
  – Design/vision hybrid courses between US & FL universities (implement & expand in 5 yr) that give full academic credit. Student advisement