

UCGIS Education Committee Newsletter

David DiBiase, chair

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This issue reports six matters that have commanded the Education Committee's attention since my last report: the Summer Assembly agenda, the Model Curricula project, the U.S. Geospatial Intelligence Foundation, Professional Certification, the Virtual Seminar, and the 2005 Educator of the Year award.

1. Education Activities at 2005 Summer Assembly

SUNDAY JUNE 26 – MONDAY JUNE 27

Model Curricula editorial team workshop

TUESDAY JUNE 28

1.15 – 5.00 pm (or earlier as appropriate) **Education Committee meeting**

WEDNESDAY JUNE 29

09.15 – 10.15 am **Plenary address: Roger Downs**, "Support for Thinking Spatially: The Incorporation of Geographic Information Science Across the K-12 Curriculum"

10.30 – noon **Panel discussion: USGIF & Geospatial Intelligence Academy**

- Featuring representatives from the U.S. Geospatial Intelligence Foundation and National Security Agency

01.00 – 03.00 pm **Panel discussion: Model Curricula project GIS&T Body of Knowledge**

- Including a briefing on the current status of the project, an interactive session in which participants will be asked to suggest actionable learning objectives for particular topics, and a report from representatives of the Geospatial Workforce Development Center at the University of Southern Mississippi.

THURSDAY JUNE 30

01.00 – 03.00 pm Workshops

- **Teaching and Learning Workshop for Graduate Students and New Faculty Members.** An instructional design specialist will introduce fundamentals of course design, development, delivery, assessment, and evaluation. Participants will build on the work of the Model Curricula Project GIS&T Body of Knowledge by using a "backward design" approach. A set of learning objectives that emerge from the Model Curricula Project will be used to create course assessment tools and appropriate teaching/learning strategies. Through active participation in this workshop, participants will produce the building blocks for their own course designs.

- **GIS&T Body of Knowledge:** Members of the Model Curricula editorial team will work with participants to define BoK topics as formal learning objectives.

FRIDAY JULY 1

01.00 – 03.00 pm **Virtual Seminar on Ethics for GIS Professionals:** Briefing and course design session for potential participants.

For more information on the Summer Assembly, see <http://www.ucgis.org/summer2005/>

2. Model Curricula project status report

Late in 2004 the Education Committee empanelled an editorial team including Libby Wentz, Karen Kemp, Ann Johnson, Mike DeMers, and yours truly. The team developed a plan of work leading to completion of a first edition of the GIS&T Body of Knowledge (BoK) in 2006. A draft version of the BoK appeared in the "strawman" version of the UCGIS Model Curricula released in June 2003.

Since the January newsletter, members of editorial team met twice in Phoenix, Arizona (February 7-8 and April 26-27) and once via Web conference (June 1) to work on the knowledge areas, units, and especially the individual topics that comprise the BoK. A series of workshops and panel discussions is scheduled for the Summer Assembly at Jackson, WY. An additional editorial team meeting scheduled during ESRI Ed UC in San Diego on July 22.

The top priority at present is to specify topics as formal learning objectives that can be readily implemented as learning activities and evaluation instruments. The editorial team has recruited an advisory board made up of 42 (and counting!) former MC Task Force members and additional content experts. In addition to requesting input from advisory board members the editorial team will seek ideas for learning objectives from participants at the Summer Assembly in Jackson.

The editors aim to submit a complete draft of the Body of Knowledge for review by the advisory board in October 2005. We plan to present a complete first edition of the BoK at the 2006 UCGIS Summer Assembly. Other products, such as an edited volume that includes several discipline-specific curricular pathways, are expected to follow after publication of the first edition of the BoK.

3. USGIF Names Academy Panelists

At the request of the U.S. Geospatial Intelligence Foundation (USGIF), Education Committee members recommended four applicants and one UCGIS representative from academic institutions to serve on the founding panel of the Geospatial Intelligence Academy. Panelists will include:

Curt H. Davis, University of Missouri Center for Geospatial Intelligence
George F. Hepner, University of Utah
Bruce A. Ralston, University of Tennessee
Steven D. Prager, University of Wyoming
Todd Bacastow, Penn State University (UCGIS representative)

In November 2004 USGIF announced its plan to form a Geospatial Intelligence Academy. The Academy's mission is to develop and promote curriculum guidelines and a voluntary accreditation process for use by educational institutions that wish to develop and offer certificate programs in geospatial intelligence. A panel of experts from industry, government, and academic institutions will meet over the coming year to develop the guidelines and standards.

The UCGIS Board is currently considering USGIF's invitation to establish a "formal relationship" between the two organizations.

4. Status of Professional Certification in GIS

a. Status report (Excerpted from a white paper entitled 'The U.S. Geospatial Education Infrastructure' that I recently submitted to the National Academies of Science 'Beyond Mapping' committee): Two organizations—the American Society for Photogrammetric Engineering and Remote Sensing (ASPRS) and the Geographic Information Systems Certification Institute (GISCI)—currently operate successful professional certification programs in the geospatial field.

ASPRS (a UCGIS institutional member) confers two levels of professional certification: Certified Mapping Scientists in either Remote Sensing or GIS/LIS, and Certified Technologists in Photogrammetry, Remote Sensing, or GIS/LIS. Requirements include references, peer review of qualifications, a pledge to comply with the Society's Code of Ethics, and successful completion of a proctored examination. Recertification is required every five years. The Certified Mapping Scientist designation is exclusive; only 25 certified individuals are listed in ASPRS' public databases as of May, 2005. The new Certified Technologist program is somewhat less rigorous, but only four individuals earned the Certified GIS/LIS Technologist designation through May 2005. Although more than 20 new applications are pending, it is apparent that the demand for rigorous professional certification is limited at present.

Barnhart (1997) identifies three types of professional certification: portfolio based, competence-based, and curriculum-based. ASPRS' programs exemplify competence-based certification, in which "candidates must demonstrate their mastery of a common body of knowledge within their profession" by examination. In contrast, GISCI's Geographic Information Systems Professional (GISP) certification program is portfolio-based, requiring individuals only to document relevant qualifications at specified levels of achievement.

GISCI: A spin-off of the Urban and Regional Information Systems Association (URISA), the Geographic Information Certification Institute (GISCI) began accepting applications in 2004. Individuals are certified as GISPs by earning a requisite number of "achievement points." Point values are defined for achievements related to education, experience, and contributions to the profession. (Eligibility of education point claims are based upon the draft UCGIS GIS&T Body of Knowledge.) Applicants must also agree to comply with a Code of Ethics. No examination is required. Due perhaps to its relatively lax requirements, GISCI certified 535 GISPs in its first year, and claims 717 through May, 2005.

The URISA committee that planned the GISCI certification program was mindful of the argument that GIS certification needs to attract widespread participation if it is to influence professional practice. The committee adopted a portfolio-based approach as a way to lower barriers to participation in what some committee members envisioned as essentially a professional development program. While GISCI certification does little to ensure professional competence, it apparently is succeeding in building a community of practitioners who subscribe to a professional

development strategy based upon ethical practice, lifelong learning, and participation in professional organizations.

b. UCGIS position A UCGIS' white paper on accreditation and certification (Obermeyer and Onsrud, 1997) states that "UCGIS members, which consist primarily of universities, do not appear to have a strong enough vested interest in certification to initiate or manage [a professional certification] program ... If there was a clamoring by novices or employers within the discipline to institute certification of GI practitioners, UCGIS or individual professors at UCGIS institutions would be willing to advise and support such an initiative by one or more professional organizations but ICGIS would be inappropriate as the lead institution..." (p. 19). A 1999 meeting of the Education Committee, chaired by Richard Wright, arrived at similar conclusions.

Does the popularity of the GISCI program represent a "clamoring"? I think so. And I think UCGIS should be prepared to offer advice and consent to certifying bodies. Meanwhile, GISCI has invited UCGIS to become a 'member institution.' The UCGIS Board is considering this invitation in consultation with ASPRS, which is a UCGIS institutional member.

5. UCGIS Virtual Seminar 2005

Inspired by Codes of Ethics promulgated by both GISCI and ASPRS, the topic of this year's Virtual Seminar will be "Ethics for Geographic Information Systems Professionals." The Seminar will span ten weeks in the Fall of 2005, from 12 October through 21 December. Confirmed seminar leaders include Francis Harvey and Will Craig (University of Minnesota), Steve Ventura (University of Wisconsin), Mark Gahegan and David DiBiase (Penn State), and, under the auspices of the Worldwide Universities Network, Rich Harris (University of Bristol). Other participating institutions include Leeds University, the Ohio State University, Oregon State University, and the University of Redlands.

The Penn State Master of Geographic Information Systems program, which is conducted online via the University's World Campus, will offer the UCGIS/WUN Virtual Seminar to its registered students for 3 graduate credits as GEOG 597. Students at other UCGIS and WUN member institutions will be able to participate in the Seminar as guests. Faculty members at other institutions may elect to offer a parallel course number so that their students may earn credit for their participation.

The instructional design and development team that supports the Penn State Master of GIS program will coordinate faculty activities, host the primary e-learning infrastructure, and provide technical support. Students and faculty members will be able to access a syllabus, course calendar, assignments, and communication tools through Penn State's Web-based course management system. Other media, including desktop Web conferencing and streaming video, will also be employed as appropriate.

Please contact me (dibiase@psu.edu) if you are interested in participating as a seminar leader or if you wish to make the seminar available to your students. Note that an informational session will be held at the Summer Assembly on Friday, July 1, starting at 1.00 pm.

6. Educator of the Year award 2005

2004 Award winner Karen Kemp chaired the 2005 Education Award committee. The committee will announce the award winner at the Summer Assembly.