Geomatics Advisory Board
Engineering & Industry Building, Rm 413
Friday, November 3, 2017, 12:00pm – 3:30 pm
Minutes: Alyssa Ament, GEO Administrative Assistant

1. Call to Order - 12:25 pm

2. Welcome and Introductions

3. Roll Call
   Attended:
   Steve Buchanan, Paul Brooks, Jennifer Dowling, Brian Gutzwiller, Kurt Huhta, Terri Morganson, Tom Newman, Jim Sharp, Jeff Yates, Jeff Hollingsworth (UAA), Gennady Gienko (UAA), Caixia Wang (UAA), Marguerite Leoni (GSA)
   Excused Absences:
   Nathan Wardwell, Joel Cusick, Isaiah Ditmer, Eric Gabrielson, John Koltun, Stan Moll, Bill Preston
   Unexcused Absences:
   Don Davis, Kevin Quinn, Steve Schmitt

4. Approval of and changes to Agenda
   a. Steve Buchanan requested to add 6e: Review "To Do" items from 03/31/17 meeting.
   b. Paul Brooks motioned to approve the agenda with changes. Tom Newman seconded. Agenda approved.

5. Approval of Minutes from March 31, 2017 meeting
   a. Tom Newman pointed out that he was missing from the list of attendees at the 03/31/17 meeting.
   b. Paul Brooks motioned to approve the agenda with changes. Jennifer Dowling seconded. Agenda approved.

6. Old Business and Reports
   a. Geomatics Department Update – Jeffery Hollingsworth
      i. The state of the Department is strong and its numbers are not too much lower from the 2016-2017 academic year. The 16-17 AY saw the largest graduating class with 20 students between fall and spring.
      ii. The Undergraduate Certificate in GIS is slated to be deleted ASAP under the request of the Provost Office. There are two students who are working to complete the degree.
      iii. The Department is working on a plan to increase enrollment at the request of the Dean's Office. This includes marketing, outreach, and a plan to have all of the Geomatics courses available via distance learning. GEO A146 & GEO A156 are already being offered via a blend of distance learning and face-to-face meeting and have received positive feedback. Jeff Hollingsworth offers extra help sessions in the evening for students. Caixia Wang's GIS A101 has also had a lot of success via online learning, with the main challenge being keeping students on task with managing their time.

iv. Labs are being offered in new formats in order to better accommodate students: 1) during the typical time, face to face on UAA campus, 2) after hours on campus, and 3) sending the labs to a local surveyor which students can work with to complete the labs.

v. Please review the attached document for information regarding the 17-18 AY scholarships. The current procedure for students to apply for these is as follows: 1) Student fill out the general application for scholarships for the College of Engineering, 2) Names are pooled and given to the different departments to award scholarships to their students, 3) The faculty meet and decide who to nominate for funds based on the different criteria provided, 4) A memo is sent to the Dean's Office regarding faculty nominations, who then verifies that the students meet the criteria, and 5) Students are awarded the funds.

vi. Tuition waivers are going to be available next year from the College of Engineering. The Geomatics Department will likely have $10,000 to use. The Geomatics Department has informed the Dean's Office that the Department would like to see them used to recruit incoming freshmen.

b. Geomatics Department Plan to Increase Enrollment – Jeffery Hollingsworth

i. Recent and Upcoming Events:

1. 11/15/17 GIS Day – Caixia Wang will be at the event with students who will be presenting their senior projects

2. High school students will be visiting the campus periodically for presentations by the GEO staff

3. Taylor Dosch with the GSA recently gave a presentation at Dimond High School. Marguerite Leoni (the GSA representative at this meeting) reported that they had positive feedback from students.

ii. Outreach

1. Terri Morganson suggested that the GSA and the Geomatics Department be part of the monthly meetings of the Alaska Arc User Group, the International LiDAR Mapping Forum (ILMF), and the American Society for Photogrammetry and Remote Sensing (ASPRS). This would help expose the Geomatics Department to local and national professional groups.

2. Gennady Gienko expressed that outreach has been focused on high school, but suggested that students coming directly out of secondary education are not the largest population set for Geomatics. Instead, many students are military or ex-military. The issue is that there are tight regulations for military outreach. He suggested that the Geomatics Department look into hiring a professional recruitment company to work on recruiting.

iii. Distance Learning

1. The Geomatics Department is working toward converting all of its courses to be able to be delivered via distance learning.

2. The directive came from the Dean, who would like to draw students from a larger pool that expands beyond Anchorage, and possibly beyond Alaska.

iv. Graduate Certificate in Geographic Information Systems

1. Caixia Wang brought up the possibility of adding a Graduate Certificate in GIS to the program. It was discussed previously, but did not have the necessary support to move forward.

2. If industry members feel this would be beneficial to and desirable for graduates to have, please bring your support to the Department so that evidence of its necessity can be provided to support the discussion.

v. Marketing

1. Gennady Gienko proposed that the GAB members could potentially assist in a marketing campaign for the Geomatics program. As industry members are often travelling outside of the area, especially to the Lower 48, is it possible that pamphlets could be sent along to deliver at conferences, etc.?

2. The rebranding of the Geomatics Department is under discussion.

vi. Program Success

1. Steve Buchanan suggested look at other successful programs from other universities to see what is contributing to their advancement.

2. Current thoughts are that the following are the greatest contributing factors:

a. Societal knowledge and perception of geomatics

b. Local advertisement

i. There is a potential opportunity to advertise at the Science & Technology Lecture Series in the fall and spring

ii. Network with local surveyors to recruit for UAA

3. Jim Sharp suggested focusing on the Lower 48 to see how to draw these students into the program.

a. What can UAA offer that no one else can?

b. These students are okay with leaving Alaska to find jobs, which means that they are likely to seek out the program since there are opportunities beyond Alaska.

c. These students become ambassadors as they share the UAA name.

c. Research Activities

i. Gennady Gienko – Please see the attached document.

ii. Caixia Wang – Please see the attached document.

d. Geomatics Student Association Update

i. 2017 brought a structural change to the GSA, with four new positions:

1. President

2. Vice President
3. Secretary
4. Treasurer
5. Outreach Coordinator
6. Funding Coordinator
7. Social Media Coordinator
8. Liaison

ii. There are 23 paid members, though 25 people attended the last meeting.

iii. The GSA began a mentorship program this year, with is student run. There are 14 potential professional members and 5 students to participate. Students will have a mentor for one semester, and then switch to a different mentor the next semester to provide a variety of experience to students.

iv. Outreach

1. There have been some presentations at the local high schools, such as Dimond, which seem to have accrued interest.
2. The GSA has also worked with some of the elementary and middle schools on Sandbox demonstrations.

v. Display Case

1. The GSA submitted a proposal to the Dean to create a display in the 3rd floor ECB case that showcases the following:
    a. The history of geomatics
    b. Local company projects
    c. Student achievement

vi. 2017-2018 Goals

1. Improve and continue the mentorship program
2. Improve connections with the ASPLS and SPRS

e. Review of Items from 03/31/17 Meeting

i. Alumni tracking was added to the Exit Survey.

ii. At their next planning meeting, Steve will bring up the possibility of having a social event for alumni during the Mapping Conference.

iii. Lounsbury and Henderson Scholarships (see attached document)

iv. Rebranding Geomatics

1. Steve suggested seeking out “before and after” stories to see how successful this has been for other programs.

7. New Business
    a. GAB Chair Update
        i. Steven became the Vice President of the GAB after the March 2017 meeting. Nathan will remain President for another year.
    b. GAB Membership/Vacancies
        i. Jim Sharp passed suggestions to the President after the last meeting but does not have a progress update.
        ii. There is interest in adding a member from the southeast region, as they have a strong geospatial group.
        iii. Terri Morganson volunteered to seek out connections.
        iv. Bring any suggestions to Steve/Nathan
            1. Marguerite Leoni suggested Eric Glaves from Frontier Surveying.
                a. Terri and Marguerite will discuss it with him.
    c. ABET Program Educations Objectives & Student Learning Outcomes Review
        i. ABET periodically requires a review, and Geomatics is due this upcoming year.
        ii. There was a suggestion to combine the first two bullet points of the Program Educational Objectives (see attached). Jeff Hollingsworth will reword the PEO and send it to the GAB for approval.
    d. Committee for Award of Excellence in Teaching
        i. This is a committee being selected by the College of Engineering, in order to award faculty for excellence in teaching. There is a second award for excellence in research as well.
        ii. Each department is to nominate one person who is an industry member and alumni to the committee.
        iii. If there are volunteers, please send them to Nathan or Steve.
        iv. Tom Newman volunteered to be the back-up selection.
8. Additions to Agenda
    a. See item 6e
9. Schedule Next Meeting
    a. It was suggested to hold the next GAB meeting during the Mapping Conference. Steve will look at the schedule to see when it would work best. An email will be sent in December or January.
10. Adjournment
    a. Meeting adjourned at 3:00 pm.

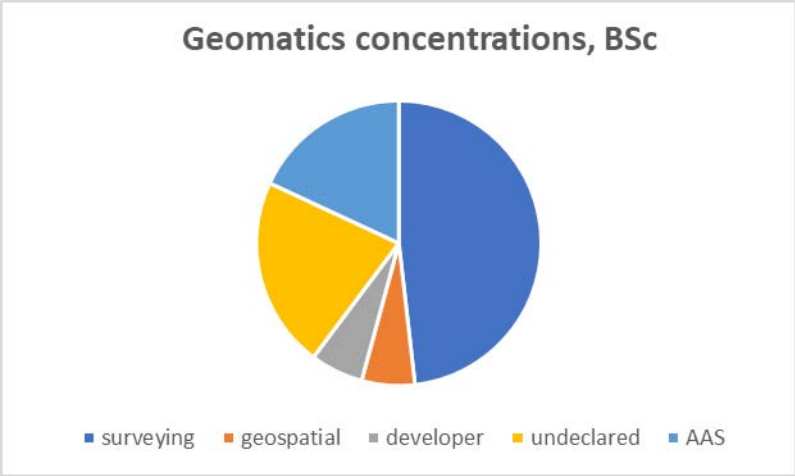
Department of Geomatics University of Alaska Anchorage

Update for GAB meeting

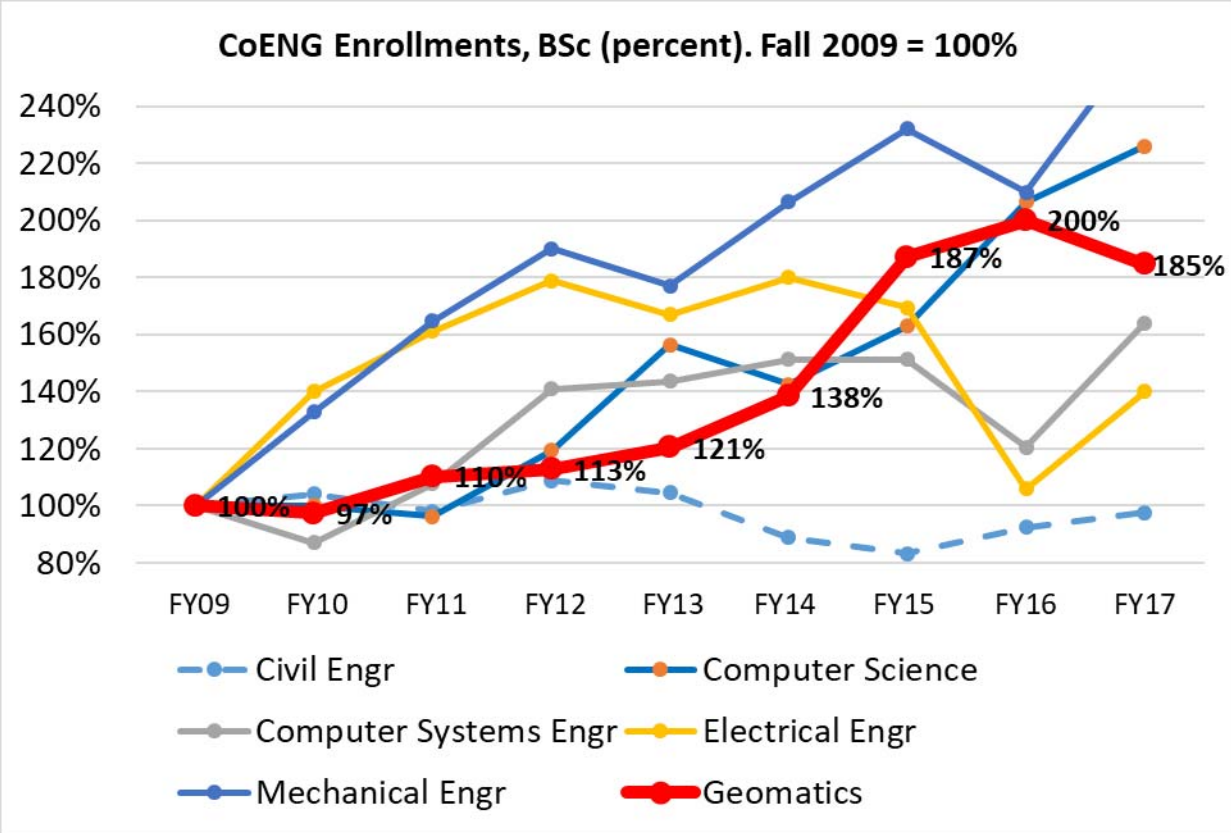
November 3, 2017

Enrollment Data

- Fall 2013: 63
- Fall 2014: 76
- Fall 2015: 81
- Fall 2016: 92
- Fall 2017
  - BSc Geomatics: 76
  - AAS Geomatics: 20
  - GIS Undergrad Cert: 1



Enrollment Trends



Geomatics Curriculum Changes

- Distance delivery has been added as an option for the following courses:
  - Fall 2017

        - GEO A146 Geomatics Computation – Jeff Hollingsworth
        - GEO A156 Fundamentals of Surveying – John Bean
        - GIS A101 Intro to GIS – Caixia Wang
        - GIS A697 GIS Analysis for Transport – Caixia Wang
    - Spring 2018
        - GEO A155 Intro to Surveying – John Bean
        - GEO A157 CAD for Surveyors – John Bean
        - GEO A246 Geomatics Computations II – John Bean
        - GEO A267 Boundary Law I – Jeff Hollingsworth

Geomatics Department Scholarships 2017-2018

- Geomatics Scholarships: $12,300
- CoENG Tuition Awards: $3,500
- Total scholarships: $15,800
    - Enrollment: 97
    - Average per student (if all students applied): $163
- 2017-2018 Scholarship recipients:
    - Alaska Society of Professional Land Surveyors Endowed Scholarship
        - Antoinette Radick
    - Excellence in Geomatics and Geospatial Studies Endowed Scholarship
        - Evan Jackson
    - M. P. Oswald Surveying and Mapping Science Endowment
        - Rayce Carey
        - Marguerite Leoni
        - Rachel Eytalis
    - Sidney Henderson Jr. Memorial Scholarship
        - Evan Jackson
        - Antoinette Radick
        - Rowdy Harnish
    - Hewitt V. Lounsbury Endowed Scholarship
        - Dorothy Widner
    - F. Robert Bell and Associates Engineering Endowed Scholarship
        - Marguerite Leoni

Geomatics Department Funds

- Total contribution to the Al Talcott fund (since its inception 10/07): $53,364.21
- Current balance: $1,119.56
    - Foundation holding account & UAA activity account (combined): $16,983.17
    - UAA activity account (spendable): $15,864.21

Faculty Research Topics/Projects

- Gennady Gienko:
  - Completed August 31, 2017
    1) 3D photogrammetric processing for planetary objects (Mars, Enceladus)
       - Funded by NSF NASA (leading institution: UAF)
       - Equipment: Digital Photogrammetric station , stereoscopic display and glasses, hi-performance server, GPU processor station
       - Software: SOCET SET, PhotoScan, CloudCompare, Hypercube

  - Current Projects:
    1) Spatio-temporal analysis of snow cover in Alaska
       - Funded by ConocoPhilips Science and Engineering Award
       - In collaboration with the Department of Civil Engineering, UAA
       - Equipment: desktop computers, hi-performance server
       - Software: machine learning, statistical data analysis, MATLAB, Python, ArcGIS desktop and online

    2) Hi-definition 3D modeling of coastal bluff erosion (Pt. Woronzof, City of Kenai)
       - No funds were sought for this project
       - Equipment: Hi-end DSLR cameras, GPS surveying equipment, terrestrial laser scanner, hi-performance server, GPU processor station, LiDAR, aerial photography
       - Software: PhotoScan, CloudCompare, Hypercube, MATLAB, surveying adjustment and statistical analysis software

    3) Reconstruction of Alaskan cultural masks using precision 3D modeling with Structure From Motion
       - In collaboration with the University of Tartu, Estonia
       - No funds were sought for this project
       - Equipment: Hi-end DSLR cameras, hi-performance server, GPU processor station
       - Software: PhotoScan, CloudCompare, MeshLab, MeshMixer, texture editors
- Caixia Wang
  - Current Projects:
    1) Arctic coastal erosion modeling using machine learning and process-based approaches
       - Funded by ConocoPhillips Arctic Science and Engineering Endowment Award

    2) Soil Feature Extraction from Archived Soil Surveys
       - Funded by Natural Resources Conservation Service

GEOMATICS ABET ACCREDITATION

The Bachelor of Science in Geomatics is accredited by the Applied Science Accreditation Commission of ABET, http://www.abet.org.

PROGRAM EDUCATIONAL OBJECTIVES

Within a few years of graduation, graduates of the Bachelor of Science in Geomatics program:

- Have attempted the AELS Board's Fundamentals of Surveying examination, if they are pursuing careers in the surveying area.
- Have attempted equivalent professional certification or registration, e.g., CP or GISP, as appropriate for their career path, if they are pursuing careers in a non-surveying area.
- Obtain membership in one or more professional organizations relevant to their career of choice.
- Be employed in the fields within the geomatics disciplines, including surveying of various types, mapping and cartography, GIS/LIS, remote sensing, geodesy, photogrammetry or hydrographic surveying.
- Continue their professional development by participating in professional development courses or sessions, or complete higher education courses.
- Teach at least one workshop or training session, make one conference presentation, or publish one article relevant to their career.

PROGRAM STUDENT LEARNING OUTCOMES

Students graduating with a Bachelor of Science in Geomatics will have:

- An ability to apply knowledge of mathematics, statistics and general physics;
- An ability to collect, analyze and interpret data in all of the recognized surveying and mapping areas;
- An ability to identify, formulate and design a geomatics system, component or process to meet desired needs;
- An ability to function on multidisciplinary as well as on interdisciplinary teams;
- An ability to think critically and to solve geomatics problems creatively and constructively;
- An understanding of professional and ethical responsibility;
- An ability to communicate effectively;
- The broad education necessary to understand the impact of geomatics solutions in a global and societal context;
- A recognition of the need for, and ability to engage in, lifelong learning;
- A knowledge of contemporary issues in professional practice;
- An ability to use the techniques, skills and modern geomatics tools necessary for geomatics practice; and
- An ability to apply knowledge in all six areas of surveying and mapping:
    - Field surveying and methods;
    - Photogrammetric mapping, image interpretation and remote sensing;
    - Surveying calculation and data adjustment;
    - Geodetic coordinates and astronomy;
    - Cartographic representation, projections and map production;
    - Computer-based multipurpose cadastre, geographic information systems.