Minutes
Department of Aeronautics & Astronautics
June 6, 2019

Attending: Acikmese, Breidenthal, Ferrante, Hermanson, Holsapple, Jarboe, Kurosaka, Little, Lum, Morgansen, Williams, Yang; McGrath, Maczko, Hacker, Connery

Absent: Dabiri, Knowlen, Livne, Mesbahi, Salviato, Shumlak (sabbatical), Vagners

MINUTES
Minutes of the May 2019 meeting were unanimously approved.

ANNOUNCEMENTS
• Religious accommodation policy – There is a meditation space set aside in GUG 312. It is still available for TA office hours which should be reserved. Any times not reserved will be available for religious services. Professors should be aware of any religious holidays that happen around exams and make accommodations for students that need them. If the student is fasting, make accommodations so they can take exams after they’ve eaten.
• Reuse of exams and homework – undergraduate students are complaining that information is not being changed on reused tests. Some reused tests can be found and some students are taking advantage of it. One recommendation, if you have TA, ask them to try and cheat in your class, try to find homework solutions.
• Feedback about the annual undergraduate cohort assessments – ET&L visits every year and does an assessment with juniors and seniors. Communication is improving in the department. They are happy with the curriculum. There are places for improvement. We will discuss this more in the fall. Let Prof. Morgansen know if you want more information about the feedback.
• Chris Lum’s farewell party is June 12th, 3pm, HUB 334.
• The lecturer search is about to kick-off. The ad has been approved. The search committee will be chaired by Prof. Hermanson. The current plan it to have on-campus interviews in September. The hiree will start in winter.
• There is a June 20th training for Interfolio scheduled. Search committee members should attend. Registration is online.
• Prof. Morgansen will be having a ‘Listening Tour’ with faculty and staff. – This is an opportunity for faculty and staff to tell Prof. Morgansen what they’re interested in, their thoughts on the strategic direction for the department. Kim Maczko will arrange the meetings.
• The department has new defibrillation stations. One is located in the entry way to AERB 220. These stations work on ages 2 and up. The machine will talk you through the steps. It will not zap people with a pulse.
• Reminder about booking space in the department. Please make sure the meeting room accepts the reservation. There have been some double-bookings because people think they have the room reserved.
• The department graduation ceremony is next Saturday at the Museum of Flight. Faculty are requested to be there at 5:45pm at the absolute latest. It will be the standard program. Danyel Hacker will bring the regalia to the venue. Faculty graduating a PHD student should prepare remarks. Faculty who can’t attend should notify Danyel, and also let her know who will be making remarks on your behalf.
The question, will exit survey information going to be made available, was asked. That data is kept internally. The college is working to come up with framework that departments can use. We look at it at graduation and then six months later. Our statistics are good.

REPORTS FROM STANDING COMMITTEES

No report from the following committees: Undergraduate Committee, Computer Committee, Faculty Search, Graduate Committee, Peer Evaluation Committee, Safety Committee, Aero/Astro Working Committees, Space Allocation Committee, Strategic Planning, AIAA, Sigma Gamma Tau, Boeing Professor Selection, Diversity, MAE-CMS Advisory, Space Systems Center, UWAL, PSI Center, Accreditation, Educational Policy, COE EDGE/UWEO, COE Executive, Promotion & Tenure, College Council, Academic Conduct, Engineering Manufacturing, FAA Center of Excellence, GISE, Technical Japanese, Certification Program, Faculty Fellows, Faculty Senate.

DATA SCIENCE OPTION

The proposed Data Science Option (DSO) is designed to meet a critical educational gap at the intersection of Aeronautics & Astronautics (A&A) and Data Science. Aeronautics & Astronautics graduate students will receive credentialed training in the analysis of large datasets. The Data Science option provides students an introduction to the world of data science, giving them the skills to understand a variety of techniques and tools. The goal of this option is to educate all students in the foundations of data science, so they may apply those methods and techniques in current research. The A&A DSO is designed for students with little or no background in data science, computer science or coding.

eScience is providing the framework for the data science option and departments can opt in to provide it to students. See the proposed curriculum in the attachment to the minutes. The graduate committee is recommending that this coursework be preexisting. Only one course can count toward A&A degree. There are four areas students are required to take.

If we offer this, student can choose this option with their existing courses. Three courses and a seminar. The graduate committee is proposing this only offered to PhD students. It would go into effect autumn or winter. Students would need to opt in before they graduate.

Discussion:

- Seems like it cheapens the PhD. Current PhD courses should already encompass this. The masters program seems like more of a technician level degree. This seems like a certificate program, and you shouldn’t need that at the PhD level.
- There are particular focused options for students. Students seem interested in this. If we didn’t provide this option, there is nothing stopping the students from taking the courses. However, having the option makes it noted on their transcript.

Motion: To offer the PhD Data Science option to students.
Motion passed.

EXECUTIVE SESSION: MERIT DISCUSSION

Discuss performance and merit of associate professors individually (assistant and associate professors dismissed).

NEW BUSINESS

None

ADJOURNED

Meeting adjourned at 1:36pm.
Summary Description

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The requirements for the A&A DSO are as follows:

I. Courses from three out of the following four areas:
   1. Software development for data science
   2. Statistics and machine learning
   3. Data management and data visualization
   4. Department specific requirement

II. 2 quarters of the eScience Community Seminar
    (http://escience.washington.edu/get-involved/escience-community-seminar/)

III. Fulfillment of the Aeronautics & Astronautics department requirements. Only one course may overlap between A&A department requirements and A&A DSO requirements.

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1. Software development for data science
   1. Software Development for Data Scientists (CSE 583)
   2. Software Engineering for Molecular Data Scientists (ChemE 546)
   3. High Performance Computing (AMATH 583)

2. Statistics and machine learning
   1. Introduction to Machine learning (CSE416/STAT416)
   2. Introduction to Statistical Machine Learning (STAT 435)
   3. Machine Learning (CSE 546)
   5. Introduction to Mathematical Statistics (STAT 509)
   6. Statistical Inference (STAT 512 or 513)
   7. Computational Methods for Data Analysis (AMATH 582)
   8. Inferring Structure of Complex Systems (AMATH 563)
10. Convex Optimization (AA/EE/ME 578)
11. Machine Learning Control (ME 599)

3. Data management and data visualization
   1. Introduction to Database Systems (CSE 414)
   2. Principles of DBMS (CSE 544)
   3. Data Visualization (CSE 442)
   4. Introduction to Data Visualization (CSE 412)
   5. Data Visualization (CSE 512)
   6. Interactive Information Visualization (INFX 562)
   7. Interactive Information Visualization (INFO 474)
   8. Information for Visualization (HCDE 411 or 511)

4. Department specific requirement
   1. Computational Methods for Plasmas (AA 545)
   2. Computational Fluid Dynamics of Compressible Flows (AA 543)
   3. Computational Fluid Dynamics of Incompressible Flows (AA 544)
   4. Optimizations and Learning for Control (EE 546)
   5. Intelligent Control through Learning and Optimization (AMATH/CSE 571)

**eScience Community Seminar**

Two quarters of the eScience Community Seminar (CHEME 599F).

**Rationale for Adding a Data Science Option**

The path to significant engineering advances is changing rapidly. Most disciplines, from physical to life sciences, have entered an era where discovery is no longer limited by the collection and processing of data, but by the management, analysis, and visualization of this information. Novel developments in instrumentation have led to a tremendous increase in the volume of this data, forcing scientists to perform analyses on data that is too big for standard desktop computing tools. Thus, rising scholars need the skills to process big data.

To harness the opportunities that big data brings, the next generation of scientists requires education both in a domain science and in methods for data management, analysis, and visualization. Thus, many graduate students in Psychology need an education that focuses on building the next generation of data science tools and knowledge in the application of these tools in a discipline-specific manner.

In addition, given the small number of tenure-track positions available to students and postdocs, experience in data science opens up additional career paths for graduate students.