Minutes
Department of Aeronautics & Astronautics
November 5, 2015

Attending: Breidenthal, Bruckner, Dabiri, Ferrante, Golingo, Hermanson, Jarboe, Kurosaka, Lin, Mesbahi, Milroy, Morgansen, Narang-Siddarth, Knowlen, Salviato, Yang, Waas; Gibbs, Maczko

Absent: Holsapple, Livne, Slough, Shumlak, You, Vagners

MINUTES:
Minutes of the October 2015 meeting were unanimously approved.

ANNOUNCEMENTS:
• Thank you to all who attended and assisted with the Visiting Committee meeting. The committee will put together a report of their findings and recommendations and will point out actionable items.
• Chair’s Distinguished Seminar series will kick-off next week with Prof. David Hyland. Faculty with recommendations for the series should contact Prof. Waas. Speakers do not need to necessarily be from academia.
• Research Professor Richard Milroy is retiring effective December 2nd. Thank you to Prof. Milroy for your years of service.
• Sabbatical requests are due to the Dean’s office on Monday, November 30th.
• Fiscal Analyst Steve Pearson has started with the department. Steve will handle pre and post award research activities.
• Faculty should be aware that staff will be on leave during the upcoming holiday weeks. Please prepare to submit proposals early and be aware of OSP deadlines.

REPORTS FROM STANDING COMMITTEES:
UNDERGRADUATE COMMITTEE: (Morgansen) - The undergraduate committee has approved the attached documents for distribution to industry partners interested in sponsoring capstone projects. Projects have been solicited from roughly 30 partners. We currently have commitments from Boeing, Rolls Royce, and Robert Winglee. Blue Origin has committed $5000 to support the space design cubesat project. We anticipate several other projects being sponsored for this year. We have several partners intending to sponsor projects for next year.

No report from the following committees: 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

BENEFITS PRESENTATION
Gerry Grohs, Benefit Consult from the UW Benefits Office came to discuss the Voluntary Employee’s Beneficiary Association (VEBA) and the Voluntary Retirement Incentive (VRI). VEBA is a tax-free health reimbursement account to which tenured faculty members, with full or partial tenure, who are eligible to retire under their retirement plan, qualify for partial (40%) reemployment, and have reached age 62 or greater within the VRI retirement window of July 1, 2015 – June 30, 2016, are eligible. These funds, which are paid out in one lump sum payment, may be used by faculty and their eligible dependents to reimburse qualified health expenses after retirement, including medical and dental insurance premiums (such as Medicare Premiums), as well as other out-of-pocket health care expenses not covered by insurance (co-pays and deductibles are
common uses). The funds in the account may be carried forward from year over year. If upon one’s death there are
unused funds in a VEBA these funds will be available to surviving legal spouses or dependent children to use for their
eligible health care expenses.
The VRI is not guaranteed to be offered every year. This offering is made at the discretion of the Provost’s Office. Faculty
who accept VRI must waive their vested interest to 5 years of state-funded partial reemployment. The current deadline to
accept and file for the VRI is December 31, 2015.
Another benefit of retirement is free parking in designated spots on campus.

- Voluntary Employees' Beneficiary Association (VEBA) -
  https://www.washington.edu/admin/hr/benefits/insure/retiree/veba.html
- Voluntary Retirement Incentive Option - http://ap.washington.edu/ahr/working/retirement/vri/
- VEBA MEP Participant Enrollment Kit -
  http://media.wix.com/ugd/6dc214_ee4489a929bf4ac39a14f23154495f3f.pdf

EXECUTIVE SESSION: REAPPOINTMENT VOTE
Research Associate Professor John Slough has been reappointed to a 3 year term.

CLOSING ONLINE MSAA
Applications, admission, and matriculation for the self-sustaining online (or “EDGE”) MSAA program have declined
significantly in recent years. This is due in large part to the much larger growth in the MAE program, which also offers online
learning options. As a result, online MSAA enrollment is no longer sufficient to cover the costs of maintaining online
instruction. To minimize the financial loss and focus department resources on the online MAE program, the Graduate
Committee recommends discontinuing admission to the online MSAA program. This will have no impact in the primary, on-
campus MSAA program. The department will continue to offer online instruction in 500-level AA courses necessary to meet
the needs of students already enrolled in the online MSAA. However, as the current students graduate, online (i.e., “EDGE”)
sections of AA courses will be phased out.

Professor Narang pointed out that many of the on-campus MSAA (and PhD) students make use of the recorded lectures as
study aids. Ending the online MSAA program will mean that this benefit is no longer available to on- campus students.
However, online recording and instruction is funded through the fees paid by online students. Access to the videos is a free
perk to on-campus students but is not something their tuition will pay for. There may be other options available for
recording lectures but cost and feasibility will be a significant consideration.

Faculty voted to close the online MSAA.

OMBUD PRESENTATION
The Ombud office serves the students, staff, and faculty at all campuses, medical centers, and Harborview. The office
typically works 500 to 600 cases per year, two-thirds of which are faculty cases. Most cases deal with relationships:
professional relationship issues, transition relationships. The Ombud can serve anyone in the university community that is
stuck in their career or in career transition. Cases brought to the office are confidential. The Office is impartial and neutral
in all cases. If any faculty members come across someone who is stuck and can’t figure out a situation on their own, the
Ombud office can help. 90 % of the cases they deal with are individual cases and about 10% require mediation.

NEW BUSINESS:
None

ADJOURNED:
Meeting adjourned at 1:32pm.
### Project Title

### Academic Year

### UW Lead Department

### Sponsor Name

### Sponsor Type

- ☐ Industry
- ☐ University
- ☐ Government
- ☐ Non-profit

### Project Restrictions

- ☐ US Citizen
- ☐ NDA

### Sponsor Liaison

### Phone

### Email

### Sponsor Technical Mentor

### UW Faculty Advisor

### Address

### Department

### Phone

### Email

### Total Project Fee

- Project Fee: $10,000
- Supplies Fee: $
- Total Fee: $

### Sponsor Resources/Facilities Provided

### UW Resources/Facilities Required

### Date submitted

### Anticipated Start Date

### Anticipated Completion Date

### Sponsor Liaison Signature

### Sponsor Mentor Signature

### UW Department Signature

### UW Faculty Advisor Signature
Project Description and Scope

Project Description, Motivation, and Relevance to Lead Department

Project Design Parameters, Performance Criteria, Scope

Desired Outcomes and Deliverables

Project Discipline and Skills Structure
Aerodynamics; propulsion and power; control, sensing and avionics; communication; structures; manufacturing; materials.

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<th>Discipline</th>
<th>Required Disciplinary Role Skills</th>
<th>Desired Role Skills</th>
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Overview
The University of Washington (UW) College of Engineering Industry Sponsored Capstone Program is a college-wide effort under development that is being designed to provide effective project-based and team-based education of undergraduate students to meet the needs of engineering, science and industry. The structure of the UW College of Engineering program is based on assessment of a dozen industry-sponsored capstone programs around the country as well as decades of experience with our existing capstone projects in UWAA and other College of Engineering capstone programs.

Within the UW William E. Boeing Department of Aeronautics & Astronautics (UWAA), we have historically provided two options for capstone design: (i) one large group effort in aeronautics that creates a new scale-model fixed wing aircraft each year based on a current design topic of direct relevance to industry or military needs and (ii) one large group effort in astronautics that has focused on a mid- or long-range analysis design of a space mission of current or projected industry or government interest. Going forward, the large group effort in astronautics will focus on development and testing of a launched system such as a cubesat. These two options must accommodate both domestic and international students, so the selected topics must not involve any constraints related to export controlled material.

In order to accommodate growth in our undergraduate program and provide all students with a deep and meaningful design experience in aerospace engineering, we are adding a third option to capstone design: a selection of industry-sponsored capstone projects that will allow students to engage directly with industry on current and emergent engineering challenges. We anticipate that roughly one-third of each student cohort will participate in each of the large team aeronautics, large team astronautics, and industry-sponsored project options.

Project Scope and Industry Commitment
We welcome project proposals from industry that will provide a small team of four to six students with a set of engineering design and performance criteria that requires deep analytical study on a topic directly relevant to aerospace engineering and that will result in a demonstrated physical prototype. Of particular interest are projects that are primarily self-contained but which must integrate with a larger system. Projects are expected to require a range of complementary skills from aerospace disciplines including: aerodynamics; propulsion and power; control, sensing, and avionics; communication; structures; manufacturing; and materials. We are particularly open to topics that require team membership from non-aerospace disciplines such as electrical engineering, industrial engineering, or computer science. The duration of work on the project will roughly six months, starting in early January and finishing in early June.

To participate in the program, an industry sponsor must commit to providing a technical mentor who will meet with the team for one to two hours each week during the duration of the project. The sponsor must provide at least one site visit for the student team, and students are encouraged to hold their weekly technical mentor meeting at the industry location, if at all possible. A faculty
advisor will be provided for each team and will work with the team a comparable amount of time as the technical mentor.

A standardized agreement for IP rights has been developed by the College of Engineering and the Washington State Attorney General’s Office. For this first year of the program, we will have a single structure for IP. Students and the UW will grant the sponsor a non-exclusive royalty free (NERF) right to project intellectual property for any purpose. The cost for sponsoring a project during this first year is $10,000. These funds will be utilized to offset costs of campus capstone lab facilities, shared equipment, and administrative support of the program. Sponsors are requested to supply an appropriate amount of funding for materials and supplies for the project that will not be provided either by the sponsor or by the UW. At this time, no ITAR restricted projects will be allowed.

All submitted projects will be reviewed by the UWAA Undergraduate Committee and are subject to approval by the Committee.

Program Structure
The timeline of the capstone sequence this year is two four-credit quarters (winter and spring) with the option of a two-credit course this autumn quarter focusing on computation, systems and manufacturing tools. In subsequent years, this autumn course will be required for all students. During the winter and spring quarters, students in all three capstone project options will meet both in their individual teams with mentors and advisors as well as in the full cohort for a one-hour colloquium. The colloquium will address common skills for effective engineering design such as fiscal management, procurement, team leadership, marketing, presentation skills, industry relations, fundraising, written communication, engineering ethics, etc.

The schedule for project selection and activity for the 2015-2016 Academic Year is as follows.
- Sep. 1, 2015 – Nov. 18, 2015: Project proposals submissions accepted and reviewed.
- Nov. 20, 2015, 2-5pm: Project pitch day. All sponsors must provide a short introduction of the project that they are sponsoring.
- Nov. 25, 2015: Student applications for project selection due.
- Dec. 4, 2015: Notification of team assignments and project selection.
- Jun. 6 – 10, 2016: Project presentations and final grading.

The student application to participate in capstone design will consist of a resume, a personal statement of interests and career goals, and a prioritized list of the student’s top three project choices (including discipline and skill role) and two project choices the student specifically does not want. Students will be guaranteed a slot on their choice of a project in the broad area of aeronautics or the area of astronautics. No other guarantees concerning project placement will be made. The UWAA Undergraduate Committee will formulate the teams and project assignments. All decisions by the committee will be final, and no petitions will be accepted.

Grading
The grading system is based on the approach used by the UW Department of Mechanical Engineering, Mechatronics Option. Note that all projects must be sufficiently unconstrained as to
allow students to meet the grading guidelines below. This grading system may shift slightly before January 1, 2016, but the final version will largely follow the guidelines below.

The individual student course grade will be a combination of a team grade, based on team performance and project difficulty, and an individual grade. The performance portion of the team grade will be based on multiple team oral presentations and the final written report. The purpose of the project difficulty rating is to give a slight increment in grading (roughly +0.1 on a 4.0 scale) according to instructor perception of a project as harder or easier than average. The individual grade will be based on the individual activities and contributions, as reported in a Personal Journal, and as judged from the oral presentations, written report, and weekly meetings. Consideration will be given to individual student level of effort, accomplishments, and leadership activities on the project. Students will be asked to rate the members of their team regarding level of effort, accomplishments and leadership activities on the project.

**Oral presentations**

The first oral presentation (P1) will take place at the end of winter quarter. Each team will present to the full class, instructors, and mentors material covering functional specifications of the individual projects, project deliverables, tasks to be carried out, task assignments, analytical results to date, and schedule for completing the project. This presentation is to take no more than 10 minutes, plus an additional 5 minutes for questions. The audience will ask questions and make suggestions.

The second oral presentation (P2) will take place four weeks into the spring quarter and will provide the class with an interim progress review. The review will focus on the concepts generated, development of the prototype and results relative to the prior quarter analysis, and any revisions to the tasks, project schedule or final deliverables. Any major changes in the deliverables must be negotiated with the technical mentor and faculty advisor. This presentation is to take no more than 12 minutes, plus an additional 5 minutes for questions.

The third oral presentation (P3), in the form of a brief Final Design Review (FDR) will be open to all interested parties (industry, department, college). In addition to the slides used for the final presentation, all necessary additional documentation will be made available to all interested parties (subject to nondisclosure agreements and industry approval of material). This presentation is to take no more than 20 minutes, plus an additional 5 minutes for questions.

Each member of the team is expected to participate in the oral presentations. All class members are expected to be active listeners and to communicate interest and understanding with good questions and suggestions.

Additional, more detailed, design review may be required by the individual projects and will be factored into the team grade as appropriate.

**Team Reporting Requirements**

The final report should be turned in to the AA main office and time stamped by 4:30 PM, Friday, June 10th, 2016. Material up to one day late will be accepted with a 10% penalty, but no material will be accepted after that. All AA capstone design project final written reports must contain the following sections:

- Risk and Liability
- Ethical Issues
- Impact on Society
Impact on the Environment
Cost and Engineering Economics

Individual Reporting Requirements
A **project journal** is required in capstone design. Students will be responsible for their own journals. The project journal must be kept in a bound lab book. The project journal must be used to document and organize individual student thoughts concerning all aspects of the project (design specifications, design ideas, calculations, modeling, product information, scheduling, etc.). All entries must be dated.

At the end of each week, each student should prepare a one or two paragraph “Work Summary” of personal activities on, and contributions to, the design project. This report should be in an outline format, listing efforts and accomplishments, and contained within the project journal. Photocopies of these pages may be collected to be shared by team members as a means of inter-team communication.

**Grading Criteria**

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<td>Final written report</td>
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<td>Project difficulty rating</td>
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<td>Individual contribution</td>
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