

# Boeing AerosPACE

*Aerospace Partners for  
Advancement in Collaborative  
Engineering*

## **“LESSONS LEARNED”** From 2013-2014 PROGRAM

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## GLOBAL PRODUCT DATA INTEROPERABILITY **S U M M I T** 2014



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2014

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# Boeing AerosPACE: the Concept

(from: Boeing LTD 2014 Executive Summary)

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## Aerospace Partners for the Advancement of Collaborative Engineering - AerosPACE

**Mission Statement:** A multi-disciplinary, multi-university collaborative capstone program bringing together stakeholders from industry, academia and government to build core competencies for the next generation of aerospace innovators in a sociotechnical, collaborative environment founded in the learning sciences.

**Vision Statement:** Develop a capstone engineering design course that motivates students to enter the aerospace profession and fills gaps in student competencies using latest research from the NSF I/UCRC Center for e-design and industry.

**What are students doing?** Multi-disciplinary teams with students and faculty from multiple universities and majors are collaborating to design, build, and fly a blended wing body UAV that can monitor agricultural fields to help improve crop yield for a growing global population.

# Boeing AerosPACE: the Approach

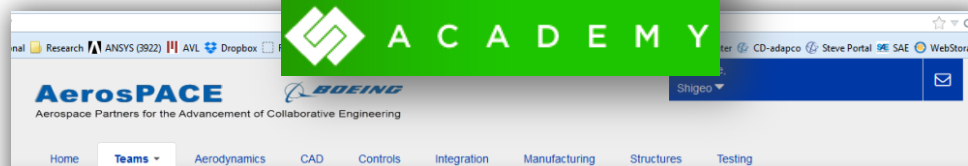
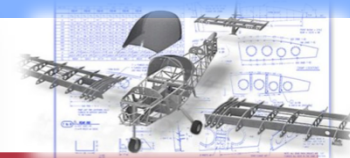
(from: Boeing LTD 2014 Executive Summary)

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# “CorpU” Teaching / Learning Tools

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## Lectures and Labs



- Screen Sharing
- Online Meeting
- Recording
- Chat

## Software Tools



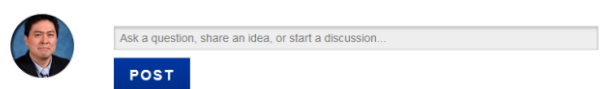
- Siemens NX
- Siemens Teamcenter
- Star CCM+
- ANSYS
- NASA Tools
- Microsoft Office

Home » Faculty

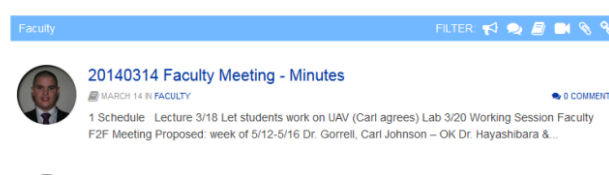
### FEATURED CONTENT



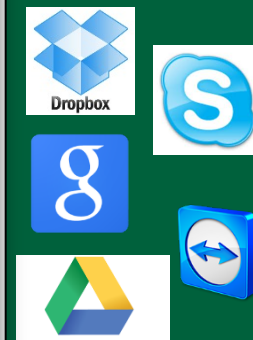
### JOIN THE DISCUSSION



### RECENT ACTIVITY



## Students



- Google Hangout
- Google Drive
- Dropbox
- Skype
- TeamViewer



# Opportunities for Students

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- Boeing subject matter specialists are the **project coaches** of each student design team
- **Multi-university faculty** collaboration and support for student project and associated academic research
- Strong networking with Boeing engineers, students, and faculty members of multi-universities through **distant collaboration across the nation**
- Strong employment opportunities: students are well trained in “**Boeing Style**” of doing engineering

Passenger



Cargo



Military



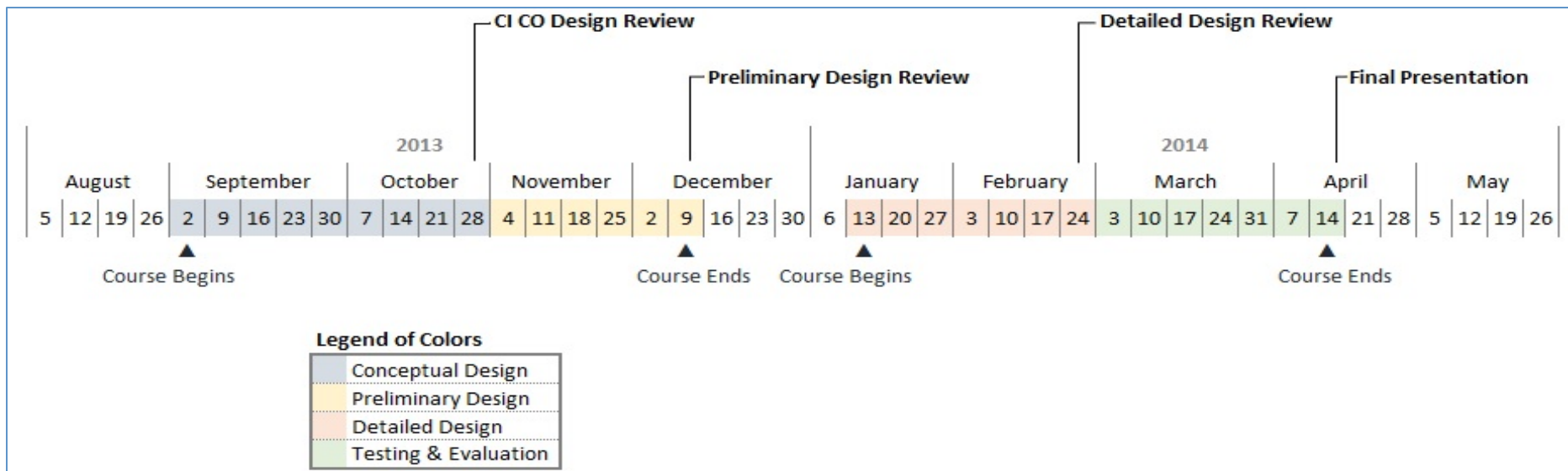
Space



# Major Challenges (1)

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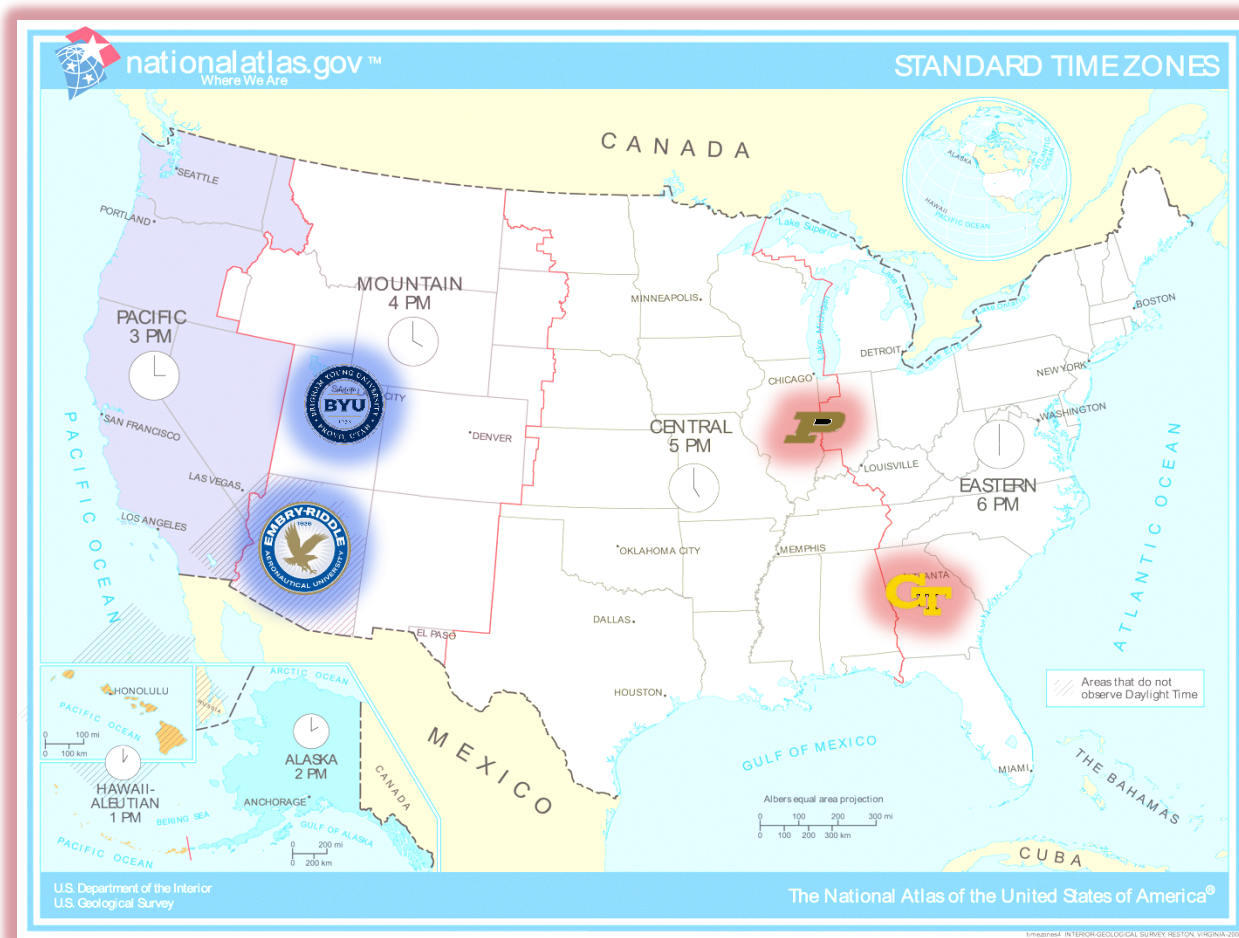
- **Project team formation:** teams of multi-university students and faculty members with industrial partners
- Lecture, lab, and meeting schedule **mismatch**
- Leadership and organizational report structure
- Project milestone v.s. school's academic schedule



# Major Challenges (2)

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- Western v.s. Eastern schools (Time Zone / Culture)



# Major Challenges (3)

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- Development of relationships and trust . . .



. . . in ONLINE COMMUNICATION ONLY ?

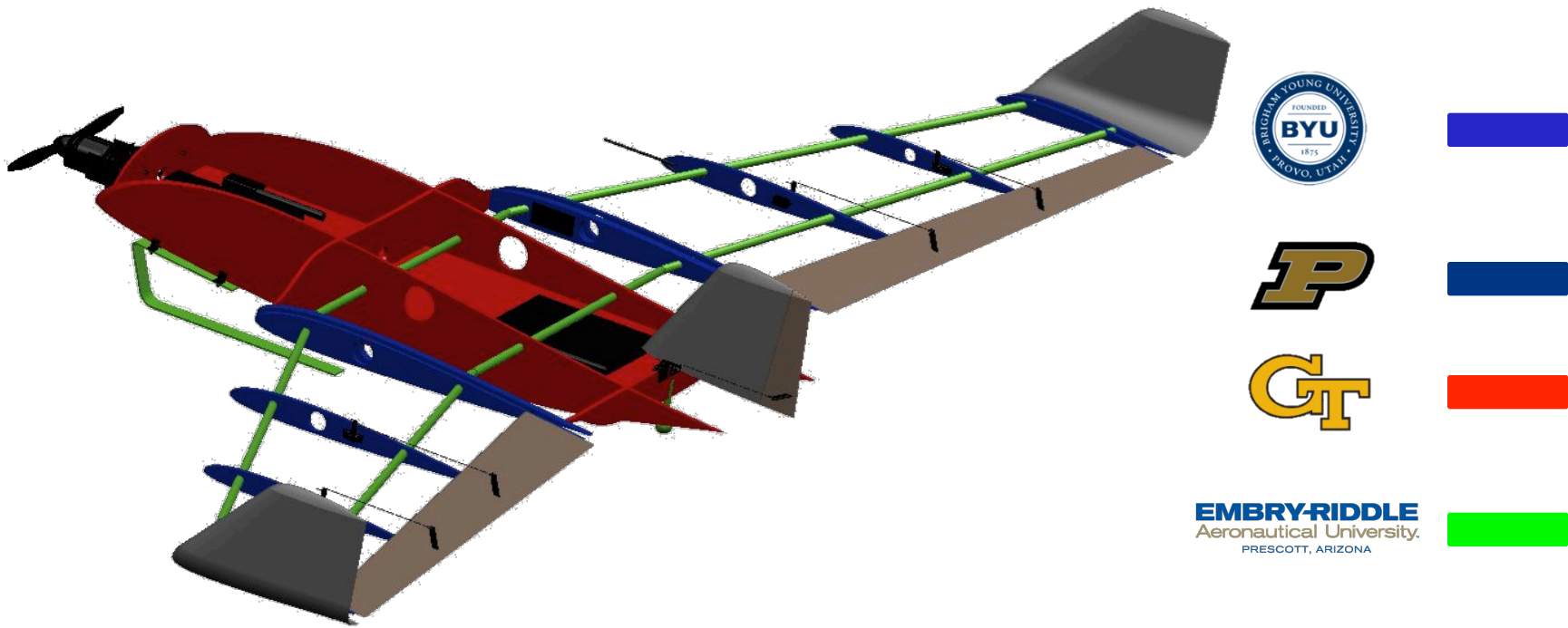




# Major Challenges (4)

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- Distributed manufacturing
- Fabrication, assembly, and testing logistics
- Budget distribution for each school



# 2013-14 Student's Perspectives . . .

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- So, how did our students handle this project? Everything was their “first time” experience . . .
- Embry-Riddle's 5 students joined into 2 teams:

## **TEAM 2** (Brigham Young Core)

- **An ERAU student takes leadership role**
- **“Collaboration in Fabrication of Aircraft”**

## **TEAM 1** (Georgia Tech Core)

- **“Auto-Pilot System Development & Integration”**

# 2013-14 Boeing AerosPACE: Team 2 (Brigham Young CORE)

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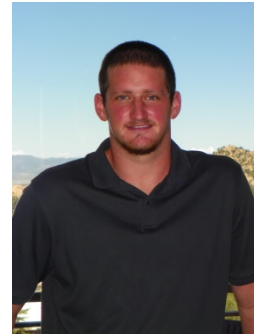
Jason Allen



Amanda Beatty



Jose Miguel Blanco



Dylan Borys

*Team Lead*



Eric Fuerst



David Louloupides



Brian Olsen



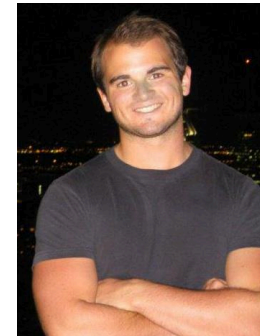
Scott Sheahan



Ronald Spencer



Weixiao Shang



Bryce Woollard



Ivan Yorgason





# ERAU Students in Team 2 (BYU)



# Maverick

## Engineering



# 2013-14 Boeing AerosPACE: Team 1 (Georgia Tech Core)

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Enrique C.  
BYU



Chris D.  
ERAU



Rachel E.  
ERAU



Spencer H.  
G.A. Tech



Bennett M.  
BYU



Kevin M.  
G.A. Tech



Tom N.  
G.A. Tech  
**Chief Engineer**



Sean S.  
G.A. Tech



Mark S.  
G.A. Tech



Andrew W.  
ERAU



Amelia W.  
G.A. Tech  
**Project Manager**



Andy Yu  
Purdue



# ERAU Students in Team 1 (Georgia Tech)

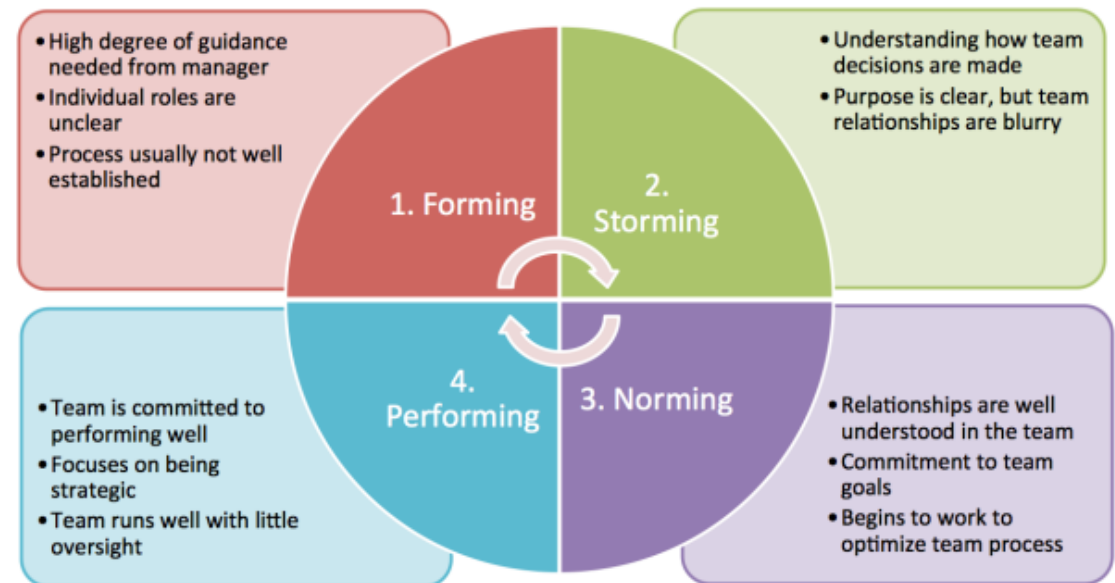


# Success in Engineering Education ?

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- Development of “Teamwork”?
- “Real-World” Experiences?
- Needs from industry (Boeing)?
- Be an Engineer . . .



# Still Some Issues to be Addressed . . .

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- Establishment of long-term visions and goals . . .
- Assessment of the capstone design project: based on ABET outcomes criteria
- Allocations of proper budget and resources for each multi-university design team
- Development of more effective engineering team work environment (Face-to-Face Kickoff)
- Elimination of school v.s. school competition mindset (who's better or worse?)
- Main purpose: education (capstone) v.s. academic research . . .



# Boeing Flight Demo: April 2014

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**TEAM 2:  
MAVERICK  
(at BYU)**



**TEAM 1:  
AGUAS  
(at Georgia Tech)**

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