Program Proposal

for the

Bachelor of Science in Aeronautical Science
(BSAS)

University of Hawai‘i at Hilo

April 23, 2015
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I. What are the Objectives of the Program?

- **Overview**
  Aeronautical science is a nationally established discipline and profession. Pilots combine knowledge, critical decision-making skills, and kinesthetic abilities to support everyday societal needs for travel, defense, and research. Pilots play a vital role in the economy of nations on a daily basis. They contribute significantly to the quality of life for the residents of Hawai‘i by flying people and goods to and from the State.

UH Hilo proposes a 4-year program which assumes a Fall semester, 2016 initial enrollment date. Summer courses will not be necessary. This program will have two tracks: Fixed Wing Flight Education Pilots (FWFEP) and Remotely Piloted Aircraft Systems (RPAS).

The FWFEP and RPAS tracks will each require 120 credit hours, including 37 general education credit hours. The program will be housed administratively in the College of Agriculture, Forestry and Natural Resources Management (CAFNRM). The faculty has voted to change the name to the College of Agriculture and Applied Science. This change will be applied for upon BSAS approval.

A Bachelor of Science degree program in Aeronautical Science (BSAS) at the University of Hawai‘i at Hilo (UH Hilo) will significantly contribute to the following areas.

- **Addressing a Statewide Concern**
  Hawai‘i does not offer a BSAS degree program, thus, Hawai‘i state residents must necessarily go elsewhere to pursue this degree. Embry Riddle Aeronautical University (ERAU) is one such destination for aspiring pilots. ERAU is a private university with one campus in Prescott Arizona and a second in Daytona Beach Florida. Over a ten year period, an average of 15 Hawai‘i residents enroll annually at ERAU alone (personal communication from William Thompson, the former ERAU Director of Admissions and current Executive Director of Alumni Relations). The tuition difference in academic year 2014-2015 between ERAU and UH Hilo is $24,612 (http://prescott.erau.edu/admissions/estimated-costs/). The proposed BSAS program in Hilo will provide Hawai‘i residents a much less costly alternative that is closer to home.

The local tourism industry generates tremendous income from flight activities and relies heavily on pilots who have received their training and education on the mainland. This program will provide Hawai‘i with qualified pilots for immediate employment in aviation-related fields.

For example, the local flight tourism industry is experiencing significant growth. In 2013, Mokulele Airlines purchased 5 new Cessna Caravan aircraft for inter-island
passenger flights. The General Manager and Director of Operations for the company created a Second-in-Command training program in order to attract pilots and train them to satisfy the rapid growth of Mokulele Airlines. UH Hilo graduates will immediately qualify for employment as Flight Instructors or as pilots for Mokulele Airlines.

With 2 years of flight time (as Instructors or as pilots for Mokulele Airlines), post graduation, UH Hilo graduates will be eligible for employment at Island Air. Three years later, they will qualify for employment at a major airline. Full details on career progression will be presented later. The airline industry anticipates numerous (mandatory) retirements and strong demand for new pilots, as will be presented in a later section.

- **Addressing Hawai‘i’s Science and Technology Goals**
  This program provides basic and applied STEM (Science, Technology, Engineering, and Mathematics) hands-on experiences that UH Hilo BSAS graduates need to participate in global discovery and innovation initiatives. This aligns with the UH System’s efforts to meet science and technology goals.

  The BSAS program will support research in agriculture, aviation, biology, geography, geology, and marine science. It will serve as a compliment to existing STEM-related research programs on campus and offer solid faculty-guided research experiences that will benefit student groups and the community.

  Also, the state of Hawai‘i was awarded an FAA Unmanned Aircraft System test site designation and, as such, has the opportunity to be at the forefront of research and development in the field of Remotely Piloted Aircraft Systems (RPAS)(also known as unmanned aircraft) (University of Alaska Fairbanks, 2014). This program will provide graduates with the background and capability to support this new technology.

- **Enhancing the State’s Economy and Community**
  Many analysts believe that the aviation industry will face a global pilot shortage in the near future. This is due in part to a mandatory retirement age for pilots (FAA requires commercial pilots to retire at age 65). A 2014 report from Boeing predicts a worldwide need for 533,000 new airline pilots by 2034. Boeing estimates that over the next 20 years, passenger travel demand will grow annually at 5.0% and cargo demand will grow at 4.7% with emerging markets in the Asia-Pacific leading the way. In order to meet the projected demand, Boeing estimates that 26,250 new pilots must be trained annually. For North America the demand is 88,000 new pilots in the next 20 years indicating that 4,400 must be trained annually (Boeing, 2014).

  An FAA report shows that between 2011 and 2014, there was a 10,422 increase in the number of US air transport pilots (ATPs). That averages to the yearly production of just over 2600 new US ATPs (FAA, 2014).
Hawaiian Airlines is clearly concerned about a possible pilot shortage. In its 2014 Annual Report, Hawaiian Airlines states that:

A higher than normal number of pilot retirements could adversely affect us. We currently have a large number of pilots eligible for retirement. Among other things, the extension of pilot careers facilitated by the FAA's 2007 modification of the mandatory retirement age from age 60 to age 65 has now been fully implemented, resulting in large numbers of pilots in the industry approaching the revised mandatory retirement age. If pilot retirements were to exceed normal levels in the future, it may adversely affect our operations (Hawaiian Airlines, 2014).

The US Government Accountability Office has published a study entitled Current and Future Availability of Airline Pilots. The report states that:

Looking forward, industry forecasts and the Bureau of Labor Statistics’ employment projections suggest the need for pilots to be between roughly 1,900 and 4,500 pilots per year, on average, over the next decade, which is consistent with airlines’ reported expectations for hiring over this period (US GAO, 2014).

The FAA has increased the flying-hour requirements and the level of training for pilots flying with all major US airlines (FAA, 2013). These increased standards will no doubt increase the safety of US passenger operations but will make it more difficult for pilots to attain their Airline Transport Certificate (ATP), requiring more flight hours and advanced training. This will further exacerbate the projected pilot shortage.

The baseline standard at major airlines to obtain an airline pilot position is:

- A baccalaureate (4-year) degree
- An airline transport certificate (ATP)
- A form of primary training from an accredited institution or the military
- A significant number of flight hours
- 1st class medical certificate

Currently there is no program in the State of Hawai‘i that can prepare a student for a career as a commercial airline pilot. The BSAS program will address that need. The average UH Hilo student will graduate with around 300 logged flight hours, and will have numerous, immediate, employment options.

The entry of Remotely Piloted Aircraft Systems (RPAS) into the civilian aviation flight structure in 2015 will add to the increased demand for pilots. At this time FAA rules state that a public RPAS operator must pass the same ground school as a private pilot and maintain pilot medical certification. The island of Hawai‘i, in particular the Hilo airport, provide the perfect environment
for a world-class international aviation training center for these reasons:

- Unique meteorological conditions
- Underutilized land at Hilo International Airport
- Low air traffic activity
- Excellent air traffic control and radar facilities
- Precision Instrument landing system
- Proximity of UH Hilo to the airport
- Multiple runways
- Available facilities on airport property
- Proximity to the growing Asia-Pacific market

Hilo offers a local culture that is welcoming to persons from the Asia-Pacific region. (Note that UH Hilo is not counting on international students in our enrollment and revenue projections. Note also that international students will be ineligible for enrollment until certification by the Student and Exchange Visitor Program (SEVP), a branch of the Office of Homeland Security. SEVP certification may not be initiated until after the program has began instruction.)

The faculty at the UH Hilo campus have tremendous expertise in geography and remote sensing that will be greatly enhanced by the addition of Remotely Piloted Aircraft Systems (RPAS). The new BSAS program will provide multiple opportunities for research in precision agriculture, forest management, invasive species, and volcanology.

- **Realizing the UH Hilo Strategic Plan**
  The BSAS program addresses all six goals highlighted in the UH Hilo Strategic Plan with the most significant impact on the following.

**Goal 1:** Provide learning experiences and support to prepare students to thrive, compete, innovate and lead in their professional and personal lives.
  - This program will utilize advanced training techniques, maximize the use of flight simulation and technically advanced aircraft to best prepare students for immediate employment in their chosen field.

**Goal 4:** Cultivate, sustain and reflect a diverse, multicultural university that is rooted in the indigenous history of Hawai'i.
  - This program is currently designed for Hawai'i state residents (students) who must now pursue more expensive mainland options. The program will well serve resident Hawai'i veterans who have generous educational benefits and want to pursue a career in aviation.

**Goal 5:** Strengthen UH Hilo’s impact on the community, island and state of Hawai'i through responsive higher education, community partnerships and knowledge, and technology transfer.
  - We project that this program will enroll 56 full-time, resident students
to Hilo in Year 4 (August 2020), contributing millions of dollars annually to the local economy.

• **Areas of BSAS Degree Concentration**
  Within the proposed BSAS degree program, two areas of concentration, or “tracks” are particularly relevant to Hawai‘i Island and neighbor islands.
  1. Fixed Wing Flight Education Pilot (FWFEP)
  2. Remotely Piloted Aircraft Systems (RPAS)

• **Accreditation**
  Accreditation ensures that programs achieve and maintain a professional level of performance, integrity, and quality. The UH Hilo BSAS program will begin in the fall of 2016 (AY 1 2016–17) and seek accreditation from the Aviation Accreditation Board International (AABI) in Year 4 (2019–20). AABI is a specialized accrediting organization comprised of representatives from all segments of the aviation field ([http://www.aabi.aero/faq7.html](http://www.aabi.aero/faq7.html)). AABI accreditation must be renewed every 5 years.

  The immediate benefit of accreditation to UH Hilo BSAS students is outlined in Advisory Circular (AC) No. 61-139. This AC, prepared by the FAA, lists criteria necessary for obtaining a Restricted Airline Transport Pilot (ATP) certificate. A traditional ATP is granted upon accumulating 1500 hours of flight time. A restricted ATP may be granted with 1000 accumulated flight-hours. That is 500 hours less than the traditional ATP. (See Student Workforce Eligibility section.)

  A full-time flight instructor typically accumulates about 1000 hours per year. In practical terms, an accredited program saves the average program graduate about 6 months of service time at an entry-level position.

• **Desired Graduate Attributes and Student Learning Objectives**
  Through their studies, the BSAS students will acquire strong:
  o Analytical thinking skills: Students learn how to gather information, identify issues, and organize findings to develop solutions
  o Technical knowledge: Students focus on specific technical details with regard to the chosen education track
  o Flying skills in one of the following areas:
    • Fixed wing flight systems: Students learn about aerodynamics specific to fixed wing aircraft, flight characteristics, and applications in both the Professional and Education tracks
    • Remotely piloted aircraft systems: Students learn about aerodynamics specific to unmanned aircraft, flight characteristics, and applications
Upon successful completion of the UH Hilo BSAS degree program, students will demonstrate the ability to:

- apply mathematics, science, and applied sciences to aviation-related disciplines;
- analyze and interpret data;
- work effectively on multi-disciplinary and diverse teams;
- make professional and ethical decisions;
- communicate effectively, using both written and oral communication skills;
- engage in and recognize the need for life-long learning;
- assess contemporary issues;
- use the techniques, skills, and modern technology necessary for professional practice;
- assess the national and international aviation environment;
- apply pertinent knowledge in identifying and solving problems;
- apply knowledge of business sustainability to aviation issues.

The BSAS program will focus on these core aviation learning outcomes:

- Describe the professional attributes, requirements or certifications, and planning applicable to aviation careers.
- Describe the principles of aircraft design, performance and operating characteristics; and the regulations related to the maintenance of aircraft and associated systems.
- Evaluate aviation safety and the impact of human factors on safety.
- Discuss the impact of national and international aviation law, regulations and labor issues on aviation operations.
- Explain the integration of airports, airspace, and air traffic control in managing the National Airspace System.
- Discuss the impact of meteorology and environmental issues on aviation operations.

The above criteria align with the AABI requirements for accreditation. (See AABI Accreditation Table within the Accreditation section.)

II. Are the Program Objectives Appropriate to the Functions of the College and University?

A. Relationship to University, Campus, and College Mission and Development Plans

- Supports the State of Hawai‘i, UH, and the UH Hilo Mission
The proposed Bachelor of Science in Aeronautical Science (BSAS) degree program will be the first on Hawai‘i Island and will complement existing applied science degrees offered at UH Hilo. Local students with an interest in aviation will be able to remain on Hawai‘i Island, which for many may be their only affordable option. Currently, many students who might otherwise pursue a degree in aviation
must opt for a different major because they cannot afford to move off-island and pay private university, non-resident or WUE tuition rates.

This proposed program supports the University of Hawai‘i System’s values of access, affordability, and excellence. The Hilo campus’ mission of improving the quality of life of the people of Hawai‘i, the Pacific region, and the world, through applied learning, will also be addressed.

**• Supports the UH Hilo Vision**

Pilots must be culturally sensitive, professional in their work and decision-making, and technically competent. UH Hilo aviation students will be engaged in applied learning that links theory with practice, connects with the distinctive natural and cultural environments of Hawai‘i, and promotes learned participation in both a local and a global society. This exemplifies the campus vision.

**• Enhances Higher STEM Education**

The program will assist the community by attracting students to higher education. It will partner with the many existing robust local K-12 and community college STEM initiatives on Hawai‘i Island by linking STEM Education directly to an exciting career in Hawai‘i that students can readily understand.

**• Provides Other Program Benefits**

Research enhances learning and innovation. The proposed aviation program will create research and educational opportunities that will complement and enhance our current capabilities. World-class tenure-track faculty in multiple UH Hilo departments (eventually including AVIT), will bring additional prestige and revenue to the UH System through externally funded research. By leveraging the resources of UH Hilo and its partners in Hawai‘i and elsewhere, faculty members and participating students will contribute to the growth of the technology workforce and technology-based industry on Hawai‘i Island through student graduation and technology transfer. This program will enhance the growth of the overall campus and its impact on the community.

**B. Evidence of Continuing Need of the Program**

**• Pilot Shortage**

Many industry analysts believe that the aviation industry is at the incipient stage of a crisis caused by a shortage of qualified pilots (Lowy, 2012). According to a report published by Boeing, airlines will take delivery of tens of thousands of new commercial jetliners over the next 20 years and the demand for personnel to fly those airplanes will be unprecedented (Boeing, 2014).
The supply of pilots is dwindling for the following reasons:

- Air travel is growing rapidly
- Airlines are ordering new aircraft
- Fewer military pilots are moving into commercial jobs (Svan, 2011)
- More pilots are retiring (FAA mandatory retirement age 65)
- Federal Aviation Administration (FAA) is introducing new rules (Technology, 2015)
- High training costs

Meeting this mounting demand will require innovative solutions focused on new digital technology to match the learning requirements of a new generation. The growing diversity of aviation personnel will require instructors to have cross-cultural and cross-generational skills. Training providers will focus more strongly on enabling airplane operators to gain optimum advantage from the advanced features of the latest generation of airplanes, such as the Boeing 787 Dreamliner and the Airbus A350. The proposed UH Hilo BSAS degree program will contribute qualified graduates to partially satisfy the aviation industry’s growing needs. (see Student Workforce Eligibility below)

- **Flying Opportunities in Hawai‘i**
  There are numerous flying opportunities for pilots in Hawai‘i. Local airlines, tour companies, cargo operators, and the legacy carrier, Hawaiian Airlines, are expanding rapidly. The following companies employ pilots in Hawai‘i: Mokulele Airlines, Island Air, Ohana by Hawaiian, Mauna Loa, Royal Pacific Air, Trans Air, Kamaka Air, Aloha Cargo, and many others.

- **Student Workforce Eligibility**
  BSAS program graduates will be eligible for jobs in the aviation industry. Students who choose the FWFEP Track will be eligible for flight instructor jobs immediately upon graduation. Flight instructor positions open often as existing instructors gain experience and move on to other employment (Blair & Freye, 2012). UH Hilo students will be eligible for employment at Mokulele Airlines prior to graduation; in their third year of study. UH Hilo BSAS graduates will be eligible to serve as pilots in the Hawai‘i National Guard or other branches of the military.

  The FAA requires a minimum of 1500 hours of flight experience to obtain an Airline Transport Pilot (ATP) certificate. An ATP is necessary for employment as a pilot at an airline which operates aircraft capable of carrying 10 or more passengers.

  The 1500 hour requirement can drop to 1000 with a Restricted ATP—a result of accreditation in year 4. Flight instructors typically work for 1 to 2 years before they have built enough experience to be eligible for employment at an airline. Typically new pilots to gain additional flight experience at a small commuter or regional airline. After gaining more experience and building additional flight hours pilots will be attractive to legacy carriers like Hawaiian Airlines. (See Table 1.)
Students who have completed the RPAS Track will have access to many STEM-oriented jobs upon graduation. RPAS is currently used by UH Hilo for remote sensing in research applications. Utility companies will use RPAS for infrastructure monitoring to include power pole, pipeline, and flare stack inspections. The fire department will use RPAS for search and rescue, wildfire management, and wildfire prevention. The Hawai‘i County Civil Defense Agency currently utilizes data collected by RPAS for management of the Kiluea lava flow threatening Pahoa.

Online media giants Amazon, Facebook, and Google have all invested into RPAS technology and are offering high-paying employment for those with the right skills (Rooney, 2014). In-state career opportunities for BSAS graduates will include agriculture, archeology, disaster management, journalism, real estate, research, and tourism. As this field grows and develops, visionaries will imagine new ways to use this technology that we have not yet imagined. A forecast by the Teal Group places worldwide UAS spending at $89.5 billion from 2014 to 2023 (FAA, 2014).

<table>
<thead>
<tr>
<th>Table 1. Sample Career Pathway to Hawaiian Airlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate UH Hilo with BSAS degree with Private Pilot, Instrument, Commercial, Multi-Engine, Certified Flight Instructor, and Certified Flight Instructor for Instrument ratings, as well as ~300 flight hours</td>
</tr>
<tr>
<td>Begin employment as a flight instructor or as a Mokulele Airlines pilot and work 1–2 years to accumulate 1500* flight hours, qualifying to apply for an ATP rating</td>
</tr>
<tr>
<td>Begin job at regional airline flying turbo-prop and/or smaller turbine multi-engine aircraft such as Island Air to gain 1000 hours of “turbine time” and 300 hours of multi-engine time</td>
</tr>
<tr>
<td>Submit application to fly as First Officer at Hawaiian Airlines</td>
</tr>
<tr>
<td>*After program accreditation in Year 4, this requirement is reduced to 1000 hours.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 2. Jobs Specific to Track</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FWFEP</strong></td>
</tr>
<tr>
<td>Upon attaining their commercial license and 200 hours, students are eligible for employment as a second in command pilot at Mokulele Airlines. They can earn $18/per hour flying for Mokulele Airlines and build flight hours before graduation. Upon completing the BSAS program and earning their Certified Flight Instructor with Instrument rating, students are eligible for flight instructor jobs. (Contact: Jeff Larson, 808-276-8098, <a href="mailto:jeff.larson@mokulelehawaii.com">jeff.larson@mokulelehawaii.com</a>)</td>
</tr>
</tbody>
</table>
• Hawaiian Airlines
The State of Hawai‘i’s largest airline, Hawaiian Airlines, has experienced growth over the last five years as the economy has recovered and tourism demand has increased (Chiem, 2012). Since November 2010, when Hawaiian began flying to Haneda International Airport in Tokyo, it has added eight additional international routes with service to Auckland, New Zealand; Osaka, Sapporo, and Sendai, Japan; New York City; Sydney, Australia; Seoul, Korea; and most recently Beijing, China. With this increase in equipment and new route structures, Hawaiian has doubled its pilot group from 350 pilots in 2008 to 650 pilots in 2015.

With Hawaiian scheduled to take delivery of an additional 6 Airbus A330-200 in the next two years, as well as the addition of 8 next-generation Airbus A330-200 NEOs, and the state-of-the-art Airbus A320 NEO in 2017, Hawaiian is expected to increase its number of pilots to 1,000 pilots by 2020 (Air Line Pilot, 2013).

<table>
<thead>
<tr>
<th>Aircraft</th>
<th>Currently</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airbus A330</td>
<td>16</td>
<td>27</td>
</tr>
<tr>
<td>Airbus A330-200 NEO</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Airbus A320</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>Boeing B767</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Boeing B717</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>46</strong></td>
<td><strong>81</strong></td>
</tr>
</tbody>
</table>

To fly for Hawaiian Airlines pilots must satisfy the following criteria:
- Airline Transport Pilot certification required with English language proficiency
- Instrument Rating required
- 1000 hours turbine as P.I.C. (pilot in command) as defined by F.A.R. Part 1 (Preferred)
- 300 hours Multi-engine experience in large airline type equipment (preferred)
- Multi-engine Rating (preferred)
- Must have Radiotelephone Operator Permit
- Must have 1st class FAA Medical Certificate
- Must be able to pass a U.S. Government Security Clearance
- Must have a valid Passport
- Must have a high school diploma or its equivalent
- Two years of college desired, college graduate (preferred)

The UH Hilo BSAS program will fill the Instrument Rating, Multi-engine Rating, and education requirements. It will prepare students to begin collecting the remaining requirements through pilot job experience.
Mandatory (and non-mandatory) retirements will also play a key factor in new hiring at Hawaiian Airlines. The pilot population will see 105 retirements between 2015 and 2020 and 186 retirements between 2020 and 2030, losing a total of 291 or almost 50% of its current pilot force. With projected retirements, new aircraft, and new future routes into Asia, Europe, and beyond, Hawaiian will need to hire 700 new pilots in the next 16 years (FAA, 2013).

Hawaiian Airlines is not alone in facing looming mandatory retirements. American Airlines reports they now employ 3038 captains between 50 and 59 years of age, and 770 captains between 60 and 64 years of age. In 2025, the year our first (class of 2020) BSAS graduates are eligible for employment at a major airline, American Airlines alone expects 713 mandatory retirements (http://www.airlinepilotcentral.com/airlines/legacy/american_airlines).

• Creating Local Educational STEM Pathways
The proposed BSAS degree offers graduating K-12 students a needed STEM education pathway. UH Hilo’s proposed BSAS degree program fills a gap that will enable local high-school graduates to obtain a relevant, application-oriented BSAS degree that will lead to a career in aviation.

• Community and Industry Support
The proposed program has wide and far-reaching community and industry support as exemplified by the letters contained in Appendix D.

C. Projections of Career Opportunities for Graduates

• Future Jobs Projected
Airlines across the globe are expanding their fleets and flight schedules to meet surging aviation demand in emerging markets. The industry continues to consider how to best address challenges and fill the future pilot pipeline. Roughly 90,000 commercial pilots work for U.S. carriers. An estimated 8,000 pilots per year will need to be hired to address retirements, industry growth, and new rules related to rest (Jones, 2013).

Finding qualified pilots is a global challenge. A 2014 report from Boeing estimated a worldwide need for 533,000 new commercial pilots over the next two decades. The report found "a pilot shortage has already arisen in many regions of the world," particularly in Asia, where the gap was causing delays and other flight interruptions (Boeing, 2014).

The largest projected growth in pilot demand is in the Asia Pacific region, with a requirement for 216,000 new pilots over the next 20 years (Boeing, 2014). Europe will require 94,000 pilots, North America 88,000, the Middle East 55,000, Latin America 45,000, the Commonwealth of Independent States 18,000, and Africa 17,000.
UH Hilo BSAS graduates will not be qualified for major airline pilot jobs at graduation. Acquiring enough flight hours to be eligible for the ATP and marketable to major airlines will require students to work in other pilot positions for a few years. Table 4, below, shows a sample of the jobs that a new pilot is likely to perform.

<table>
<thead>
<tr>
<th>Category</th>
<th>Location</th>
<th>Annual Starting Pay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flight Instructor</td>
<td>HI (statewide), Mainland</td>
<td>$12k – $20k</td>
</tr>
<tr>
<td>Charter Service (Mokulele Airlines)</td>
<td>HI (statewide), Mainland</td>
<td>$18k – $20k</td>
</tr>
<tr>
<td>Air Tours</td>
<td>HI (statewide), Mainland</td>
<td>$20k – $30k</td>
</tr>
<tr>
<td>Military Pilot</td>
<td>Oahu, Mainland</td>
<td>$35k</td>
</tr>
<tr>
<td>Skydive Jump Pilot</td>
<td>Oahu, Mainland</td>
<td>$30k – $60k</td>
</tr>
<tr>
<td>Banner Towing</td>
<td>Oahu, Mainland</td>
<td>$25k – $50k</td>
</tr>
<tr>
<td>Glider Towing</td>
<td>Oahu, Mainland</td>
<td>$0 (volunteer) – $15k</td>
</tr>
<tr>
<td>Traffic Monitoring</td>
<td>Mainland</td>
<td>$35k – $50k</td>
</tr>
<tr>
<td>Agricultural (Aerial Spray)</td>
<td>Mainland</td>
<td>$30k – $50k</td>
</tr>
<tr>
<td>Bush Pilot</td>
<td>Mainland</td>
<td>$15k – $20k</td>
</tr>
<tr>
<td>Pipeline Monitoring</td>
<td>Mainland</td>
<td>$15k – $20k</td>
</tr>
<tr>
<td>Photography</td>
<td>Worldwide</td>
<td>$20k – $30k</td>
</tr>
<tr>
<td>Aircraft Ferry</td>
<td>Worldwide</td>
<td>$15k – $20k</td>
</tr>
<tr>
<td>Fish Spotter</td>
<td>Worldwide</td>
<td>$15k – $20k</td>
</tr>
</tbody>
</table>

III. How is the Program Organized to Meet its Objectives?
The proposed BSAS degree will be offered within the College of Agriculture, Forestry, and Natural Resource Management (CAFNRM). The faculty has voted to change the name of the College to the College of Agriculture and Applied Science in the 2015–16 academic year. This change will be applied for upon BSAS approval by the BOR.

A. Curriculum Organization and Requirements

1. Bachelor of Science degree in Aeronautical Science (BSAS)
The Bachelor of Science degree in Aeronautical Science (BSAS) requires:
   o A combination of college-level mathematics and basic sciences appropriate to the discipline
   o Aeronautical Science topics appropriate to the students field of study
   o A general education component to complement the technical content of the curriculum that is consistent with the program and institution objectives

2. University General Education Requirements
To receive a Bachelor of Science degree in Aeronautical Science students must adhere to the following:
Complete the course work for one of the aviation tracks, which also satisfies all UH Hilo requirements;
Complete the minimum credit hours (120);
Maintain a minimum GPA of 2.0 for all registered credit hours; and
Maintain a minimum GPA of 2.0 for all upper division courses (numbered 300-499) in aviation.

The General Education (GE) requirements at UH Hilo for a Bachelor of Science degree in Aeronautical Science (BSAS) are shown in Table 5, below (http://hilo.hawaii.edu/academics/gened/documents/Fall2015GenEdRev7.pdf).

<table>
<thead>
<tr>
<th>Code</th>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GF</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>GL</td>
<td>Language Arts</td>
<td>3</td>
</tr>
<tr>
<td>GQ</td>
<td>Quantitative Reasoning</td>
<td>6</td>
</tr>
<tr>
<td>GW</td>
<td>World Cultures</td>
<td>6</td>
</tr>
<tr>
<td>GH</td>
<td>Humanities Electives</td>
<td>6</td>
</tr>
<tr>
<td>GS</td>
<td>Social Sciences Electives</td>
<td>6</td>
</tr>
<tr>
<td>GN</td>
<td>Natural Sciences Electives</td>
<td>7</td>
</tr>
<tr>
<td>WI</td>
<td>Writing Intensive Requirement</td>
<td>3(^1)</td>
</tr>
<tr>
<td>HPP</td>
<td>Hawai‘i Pan Pacific Requirement</td>
<td>3</td>
</tr>
</tbody>
</table>

\(^1\) This value represents three courses, rather than three credits. Courses may have variable credits.

3. Aviation Program Requirements
University of Hawai‘i at Hilo - Four-Year Academic Plan
College of Agriculture, Forestry and Natural Resource Management
Bachelor of Science (BS) in Aeronautical Science: Fixed Wing Flight Education Pilot

This is a sample academic plan. Students should meet with an academic advisor prior to registration to formulate their own plan.

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td><strong>Fall</strong></td>
<td><strong>Fall</strong></td>
<td><strong>Fall</strong></td>
</tr>
<tr>
<td>MATH 104F (GE QR I)</td>
<td>PHYS 106</td>
<td>AVIT 201</td>
<td>WI/GE LA</td>
</tr>
<tr>
<td>AVIT 102</td>
<td>PHYS 170L</td>
<td>AVIT 309</td>
<td>AVIT 324</td>
</tr>
<tr>
<td>AVIT 102L</td>
<td>ECON 130 (GE SOCS I)</td>
<td>AVIT 326</td>
<td>AVIT 350</td>
</tr>
<tr>
<td>AVIT 102F</td>
<td>AVIT 222</td>
<td>AVIT 326F</td>
<td>AVIT 422</td>
</tr>
<tr>
<td>AVIT 140 (GE HPP)</td>
<td>AVIT 222L</td>
<td>WI/GE HUM I</td>
<td>AVIT 422F</td>
</tr>
<tr>
<td></td>
<td>AVIT 222F</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CREDITS</strong></td>
<td><strong>CREDITS</strong></td>
<td><strong>CREDITS</strong></td>
<td><strong>CREDITS</strong></td>
</tr>
<tr>
<td>14</td>
<td>16</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td><strong>Spring</strong></td>
<td><strong>Spring</strong></td>
<td><strong>Spring</strong></td>
</tr>
<tr>
<td>ENG 100 (GE EC)</td>
<td>CHEM 114 (GE NATS)</td>
<td>GE HUM II</td>
<td>AVIT 357</td>
</tr>
<tr>
<td>MATH 104G (GE QR II)</td>
<td>CHEM 114L (GE NATS)</td>
<td>WI/GE SOCS II</td>
<td>AVIT 387</td>
</tr>
<tr>
<td>CS 150 (GE NATS)</td>
<td>GEOG 102 (GE WC I)</td>
<td>GE WC II</td>
<td>AVIT 408</td>
</tr>
<tr>
<td>AVIT 103</td>
<td>AVIT 303</td>
<td>AVIT 305 (GE GCC)</td>
<td>AVIT 424</td>
</tr>
<tr>
<td>AVIT 103F</td>
<td>AVIT 323</td>
<td>AVIT 311</td>
<td>AVIT 422F</td>
</tr>
<tr>
<td></td>
<td>AVIT 323F</td>
<td>AVIT 327F</td>
<td>Elective</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CREDITS</strong></td>
<td><strong>CREDITS</strong></td>
<td><strong>CREDITS</strong></td>
<td><strong>CREDITS</strong></td>
</tr>
<tr>
<td>16</td>
<td>16</td>
<td>16</td>
<td>13</td>
</tr>
<tr>
<td><strong>Summer</strong></td>
<td><strong>Summer</strong></td>
<td><strong>Summer</strong></td>
<td><strong>Summer</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL CREDITS</strong></td>
<td><strong>TOTAL CREDITS</strong></td>
<td><strong>TOTAL CREDITS</strong></td>
<td><strong>TOTAL CREDITS</strong></td>
</tr>
<tr>
<td>30</td>
<td>62</td>
<td>93</td>
<td>120</td>
</tr>
</tbody>
</table>

Notes:
1/ depends on placement but assuming entry at MATH 104
2/ Students must earn a minimum GPA of 2.00 for all registered credit hours and
3/ Students must earn a minimum GPA of 2.00 for all upper division (numbered 300-499) courses in aviation.
### University of Hawai‘i at Hilo - Four-Year Academic Plan

**College of Agriculture, Forestry and Natural Resource Management**
**Bachelor of Science (BS) in Aeronautical Science: Remotely Piloted Aircrafts Systems**

This is a sample academic plan. Students should meet with an academic advisor prior to registration to formulate their own plan.

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td><strong>Fall</strong></td>
<td><strong>Fall</strong></td>
<td><strong>Fall</strong></td>
</tr>
<tr>
<td>MATH 104 (GE QR I) 4</td>
<td>ECON 130 (GE SOCS I) 3</td>
<td>GE HUM I 3</td>
<td>PHYS 120 (GE GCC) 3</td>
</tr>
<tr>
<td>AVIT 201 3</td>
<td>AVIT 222 4</td>
<td>AG 200 / ENG 225 (WI) 3</td>
<td>AVIT 324 3</td>
</tr>
<tr>
<td>AVIT 102 3</td>
<td>AVIT 222L 1</td>
<td>CS 151 3</td>
<td>AVIT 311 2</td>
</tr>
<tr>
<td>AVIT 102L 1</td>
<td>AVIT 222F 4</td>
<td>GEOG 102 3</td>
<td>AVIT 352 3</td>
</tr>
<tr>
<td>AVIT 102F 4</td>
<td>WI Elective I 3</td>
<td>GEOG 201 3</td>
<td>GEOG 470 3</td>
</tr>
<tr>
<td>AVIT 140 1</td>
<td>Credits 16</td>
<td>Credits 15</td>
<td>Credits 14</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td><strong>Spring</strong></td>
<td><strong>Spring</strong></td>
<td><strong>Spring</strong></td>
</tr>
<tr>
<td>CS 102 (GE QR II) 3</td>
<td>CHEM 114 (GE NATS) 3</td>
<td>GE HUM II 3</td>
<td>GE HPP 3</td>
</tr>
<tr>
<td>ENG 100 (GE EC) 3</td>
<td>CHEM 114L (GE NATS) 1</td>
<td>GE SOCS II 3</td>
<td>GE WC II 3</td>
</tr>
<tr>
<td>CS 150 (GE NATS) 3</td>
<td>AVIT 152 3</td>
<td>AVIT 305 (WI) 3</td>
<td>AVIT 408 3</td>
</tr>
<tr>
<td>AVIT 103 3</td>
<td>AVIT 303 3</td>
<td>AVIT 309 3</td>
<td>GEOG 480 3</td>
</tr>
<tr>
<td>AVIT 103F 4</td>
<td>GE LA I 3</td>
<td>AVIT 252 3</td>
<td>AVIT 452 4</td>
</tr>
<tr>
<td>Credits 16</td>
<td>Credits 13</td>
<td>Credits 15</td>
<td>Credits 16</td>
</tr>
<tr>
<td><strong>Summer</strong></td>
<td><strong>Summer</strong></td>
<td><strong>Summer</strong></td>
<td><strong>Summer</strong></td>
</tr>
<tr>
<td>Credits 0</td>
<td>Credits 0</td>
<td>Credits 0</td>
<td>Credits 0</td>
</tr>
<tr>
<td><strong>Total Credits</strong> 32</td>
<td><strong>Total Credits</strong> 60</td>
<td><strong>Total Credits</strong> 90</td>
<td><strong>Total Credits</strong> 120</td>
</tr>
</tbody>
</table>

**Notes:**
1/ depends on placement but assuming entry at MATH 104
2/ Students must earn a minimum GPA of 2.00 for all registered credit hours and
3/ Students must earn a minimum GPA of 2.00 for all upper division (numbered 300-499) courses in aviation.
4. **Student Pilot Progress**

The table below illustrates student progression through the pilot certificates from Private Pilot to Certified Flight Instructor with Instrument. The left column indicates the estimated semester in which most students will obtain a particular pilot certificate.

Note that the *hours accrued* shown in the table illustrate the estimated maximum number of flight hours expected. The BSAS curriculum is designed for flight students to attain their certificates efficiently.

<table>
<thead>
<tr>
<th>Semester</th>
<th>Certificate and Hour Accumulation (Estimated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>At successful semester completion, students will have earned their <strong>Private Pilot Certificate</strong>. This allows them to rent an aircraft and fly with family and friends, but not for hire. (90 hours accrued)</td>
</tr>
<tr>
<td>3</td>
<td>At successful semester completion, students gain an <strong>Instrument Rating</strong> addition to their private pilot certificate. Students may exercise the same privileges as from their private pilot certificate, but they now have the freedom and security to fly in low-visibility conditions. This expands the time and places students may exercise their privilege granted by their certificates. Students may fly with family and friends, but not for hire. (135 hours accrued)</td>
</tr>
<tr>
<td>5</td>
<td>At successful semester completion, students will have earned a <strong>Commercial Pilot Certificate</strong>. Students may exercise the same privileges as from their private pilot certificate with instrument rating, but now they may be hired to do so. (225 hours accrued) At this time students are legally able to hold basic pilot jobs, but even the most basic pilot job employers usually require a minimum of 300 hours</td>
</tr>
<tr>
<td>6</td>
<td>At successful semester completion, students will have earned their <strong>Multi-Engine add-on</strong> to their commercial certificate. Students will now have the ability to pilot larger, more complex aircraft for hire. (270 hours accrued)</td>
</tr>
<tr>
<td>7</td>
<td>At successful semester completion, students will have earned their <strong>Certified Flight Instructor Rating</strong>. At this level students typically don’t take other students up in an aircraft, but they may begin teaching ground school and the basics of flight. (315 hours accrued)</td>
</tr>
<tr>
<td>8</td>
<td>At successful program completion, students will have earned their <strong>Certified Flight Instructor, Instrument Rating</strong>. Graduates are employable as flight instructors and may begin teaching the next generation of students. (360 hours accrued)</td>
</tr>
</tbody>
</table>
B. Admission Policies Specific for the Proposed UH Hilo BSAS Degree
BSAS students will meet all general requirements for admission to UH Hilo, as described in the UH Hilo University Catalog. Domestic WUE students will be accepted into the program. International students will eventually be accepted into the program after the program receives certification from the SEVP. Current UH students can transfer into the program. Transfer students will be accepted into the program but may have to start with beginning AVIT courses. UH Hilo will use Honolulu Community College course numbering and accept all AVIT credits earned at HonCC.

Further, all pilots must maintain an FAA specified level of medical readiness to exercise privileges granted by a pilot certificate. Prior to enrolling in the UHH Aeronautical Science Baccalaureate program, students must meet eligibility requirements. Students will visit an Aviation Medical Examiner (AME) licensed to perform a Medical Certification Exam. This exam ensures that a student possesses the medical capability to exercise the privileges granted by a pilot certificate.

Students must have:

- Current First-Class medical certificate, (or)
- Current Second-Class medical certificate

At the time of examination by the AME, students will request a Student Pilot Certificate. This document is shown on the reverse-side of the medical certificate. In accordance with the Aviation and Transportation Security ACT (ATSA) students must show proof of U.S. citizenship. The ATSA will provide clearance for international and permanent resident students. In addition to a government-issued photo identification card, students must have one of the below:

- An original U.S. naturalization certificate with raised seal, Form N-550 or Form N-570
- An original certification of birth abroad, Form FS-545, or Form DS-1350
- An original certificate of U.S. citizenship, Form N-560, or Form N-561
- An original birth certificate with raised seal documenting birth in the United States or one of its territories
- A current U.S. passport (unexpired)

Special Note Concerning RPAS (Remotely Piloted Aircraft Systems) Track:
At this time, enrolling in the RPAS track is limited to U.S. citizens only. International Traffic in Arms Regulations (ITAR) enacted by the United States State Department prohibits participation in the RPAS track for non-U.S. citizens. Until ITAR is amended, students must be U.S citizens to enroll in RPAS-specific courses.
C. **Advising and Counseling**  
Advising and counseling will take place within the:  
College of Agriculture, Forestry & Natural Resource Management (CAFNRM)  
University of Hawai‘i at Hilo  
200 W. Kawili Street  
Hilo, Hawai‘i 96720  

There will be an Advisor embedded in CAFNRM, dedicated to BSAS students. All students in the BSAS degree program must receive approval of courses from their advisor prior to registration each semester.

Updated curriculum checklists summarizing all of the requirements for the BSAS program curriculum will be available on CAFNRM’s website.

An orientation session for new students will be held by CAFNRM each semester before classes begin. Incoming students will receive approval of their program courses at that time. In addition, incoming students with waived course work (e.g., advanced placement examination) must still fulfill credit-hour requirements and should contact CAFNRM advisors for more information. The Division of Student Affairs will designate a dedicated person to the task of advising BSAS students.

IV. **Who Will Enroll in the Program?**

A. **New Students**  
Hawai‘i does not offer a BSAS degree program; therefore, Hawai‘i state residents must necessarily go elsewhere to pursue this degree. Embry Riddle Aeronautical University (ERAU) is one such destination for aspiring pilots. ERAU is a private university with one campus in Prescott, Arizona, and a second campus in Daytona Beach, Florida. Over a ten-year period, an average of 15 Hawai‘i residents enrolled annually at ERAU (data courtesy of William Thompson, the former ERAU Director of Admissions and current Executive Director of Alumni Relations). The tuition difference in academic year 2014–15 between ERAU and UH Hilo is $24,612 ([http://prescott.erau.edu/admissions/estimated-costs/](http://prescott.erau.edu/admissions/estimated-costs/)). The proposed BSAS program at UH Hilo will provide Hawai‘i residents a much less costly alternative that is closer to home.

A 2015 survey of 15 members of the Hawai‘i Club at ERAU revealed that at least 10 of the 15 would have pursued their education in Hawai‘i, if they had that option available ([https://erauprescott.collegiatelink.net/organization/hawaiiclub](https://erauprescott.collegiatelink.net/organization/hawaiiclub)).

The University of North Dakota 2014–15 tuition for WUE students is $10,935 ([http://und.edu/admissions/student-account-services/ tuition-rates.cfm](http://und.edu/admissions/student-account-services/ tuition-rates.cfm)). This is $3,899/year more costly than UH Hilo for Hawai‘i residents. (For an article featuring Jerris Tagavilla, a Hawai‘i resident and aviation major at UND, please see the following URL: [http://und.edu/features/2014/07/tagavilla-silva.cfm](http://und.edu/features/2014/07/tagavilla-silva.cfm)).
Central Washington University (CWU) is a regional University that offers a BSAS degree. Their aviation program has enrolled between 100–140 majors between 2007 and 2014. (This data, courtesy of the CWU IR Office, is displayed in Appendix C.) The UH Hilo business plan calls for only half this number of majors at full implementation. The contract between CWU and the flight provider is provided in Appendix C. The WUE 2014–15 tuition at Central Washington University is $11,912 or $5,264 more than UH Hilo (http://wue.wiche.edu/profile.jsp?id=124).

Finally, Perry Martin, President of Maryknoll School (MS) in Honolulu, shared with UH Hilo that MS will begin specific career paths in the fall of 2016, including aeronautical sciences. He expressed hope that this initiative “can be utilized as a feeder program toward postsecondary education” in aeronautical sciences at UH Hilo. (His letter may be viewed in Appendix B.)

Based on this information, we think it is reasonable to expect 20 resident, first-term, full-time freshmen to enter the BSAS program annually. Our projected retention rate matches that of the historic UH Hilo student retention data from resident, first-time, full-time freshmen, which slightly exceeds that of all freshmen. (See Enrollment and Attrition section.)

We anticipate attracting WUE students, and eventually international students, but these populations have not been surveyed and are not part of the business plan.

B. Veterans

Veterans are attracted to aviation, particularly flight training. Throughout their careers most military personnel come into contact with aviation. Aside from a rare few, enlisted personnel are not eligible for pilot positions. Instead they perform the duties of maintainers, loadmasters, schedulers, aerial gunners, and so on. After experiencing such a close relationship with aviation many veterans end their service with the desire to fly. According to the VA website, there are currently 156 veterans enrolled at UH Hilo receiving education benefits.

A post 9/11 veteran, with three years of service, has many benefits that support his/her enrollment in the UH Hilo BSAS program. These benefits include full tuition, full educational fees (which include flight instruction), a housing allowance, and a stipend for books and supplies (http://www.benefits.va.gov/GIBILL/resources/benefits_resources/rates/ch33/ch33rates080114.asp#TUITION).

In addition to this connection, military-trained individuals are an excellent match to aviation fields. Discipline, structure, attention to detail, and a focus on safety are heavily emphasized topics in the military.

Thus, we expect to recruit veterans to the BSAS program.
C. Estimated Student Costs

Estimated student costs are shown below. The Embry Riddle web site:  
http://daytonabeach.erau.edu/admissions/estimated-costs/ advises students to plan to spend $23,000-$33,000 per year, for the first two years and $10,000-$15,000 thereafter. Thus, the most expensive estimate of ERAU costs, is $96,000 in flight fees over 4 years. This is in addition to tuition and other costs of attendance.

Please note that different students need different numbers of hours of flight training to become proficient. As flight training costs are paid on an hourly basis, the costs to students vary. Also some students may choose to spend more or less time on flight instruction than others, as they balance the demands of ground school, family and employment. As a consequence students will graduate with different numbers of flight hours and will have spent different amounts on flight instruction.

Our estimated cost of attendance for resident students are displayed below. The table assumes that UH Hilo resident tuition will inflate by 2% between 2014–15 and 2015–16, and remain constant thereafter.

<table>
<thead>
<tr>
<th>Table 7. Estimated Cost of Attendance for Resident Students</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full Time on campus</strong></td>
</tr>
<tr>
<td>Tuition (2016–17)</td>
</tr>
<tr>
<td>Fees (2016–17)</td>
</tr>
<tr>
<td>Books</td>
</tr>
<tr>
<td>Room &amp; Board</td>
</tr>
<tr>
<td>Personal</td>
</tr>
<tr>
<td>Travel</td>
</tr>
<tr>
<td>Loan Fees</td>
</tr>
<tr>
<td>Flight School Fees</td>
</tr>
<tr>
<td><strong>Total Cost for 4 Years</strong></td>
</tr>
</tbody>
</table>

Assuming that resident students receive the maximum amount of financial aid, the *minimum* unmet need of resident students is shown below.
<table>
<thead>
<tr>
<th></th>
<th>Full Time</th>
<th>Full Time</th>
<th>Full Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>on campus</td>
<td>w/parent</td>
<td>off campus</td>
</tr>
<tr>
<td>Pell Grant</td>
<td>$5,775</td>
<td>$5,775</td>
<td>$5,775</td>
</tr>
<tr>
<td>SEOG</td>
<td>$2,000</td>
<td>$2,000</td>
<td>$2,000</td>
</tr>
<tr>
<td>Tuition Assistance</td>
<td>$4,000</td>
<td>$4,000</td>
<td>$4,000</td>
</tr>
<tr>
<td>Federal Work Study</td>
<td>$4,500</td>
<td>$4,500</td>
<td>$4,500</td>
</tr>
<tr>
<td>Federal Direct Subsidized Loan</td>
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<td>$4,750</td>
<td>$4,750</td>
</tr>
<tr>
<td>Federal Direct Unsubsidized Loan</td>
<td>$6,000</td>
<td>$2,000</td>
<td>$6,000</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$27,025</strong></td>
<td><strong>$23,025</strong></td>
<td><strong>$27,025</strong></td>
</tr>
<tr>
<td>Total Aid for 4 Years</td>
<td>$108,100</td>
<td>$92,100</td>
<td>$108,100</td>
</tr>
<tr>
<td>Less: Program Cost for 4 years</td>
<td>$184,440</td>
<td>$161,664</td>
<td>$199,856</td>
</tr>
<tr>
<td><strong>Total Unmet Need</strong></td>
<td><strong>($76,340)</strong></td>
<td><strong>($69,564)</strong></td>
<td><strong>($91,756)</strong></td>
</tr>
</tbody>
</table>

Flight Instruction fees will be paid by the student. We will seek a provider and a contract along the terms of Central Washington University. (See example in Appendix C.)

<table>
<thead>
<tr>
<th></th>
<th>Full Time</th>
<th>Full Time</th>
<th>Full Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>on campus</td>
<td>w/ parent</td>
<td>off campus</td>
</tr>
<tr>
<td>Total Aid for 4 Years</td>
<td>$184,440</td>
<td>$161,664</td>
<td>$199,856</td>
</tr>
<tr>
<td>Less Program Cost for 4 Years</td>
<td>$184,440</td>
<td>$161,664</td>
<td>$199,856</td>
</tr>
<tr>
<td><strong>Total Unmet Need</strong></td>
<td><strong>$ 0</strong></td>
<td><strong>$ 0</strong></td>
<td><strong>$ 0</strong></td>
</tr>
</tbody>
</table>

*http://www.benefits.va.gov/gibill/flight_training.asp*
## D. Enrollment and Attrition

<table>
<thead>
<tr>
<th></th>
<th>FA16</th>
<th>SP17</th>
<th>FA17</th>
<th>SP18</th>
<th>FA18</th>
<th>SP19</th>
<th>FA19</th>
<th>SP20</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Course Credits Taught</strong></td>
<td>9</td>
<td>7</td>
<td>10</td>
<td>16</td>
<td>24</td>
<td>27</td>
<td>40</td>
<td>43</td>
</tr>
<tr>
<td><strong>Instructors Needed</strong></td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td><strong>Cumulative Enrollment</strong></td>
<td>20</td>
<td>17</td>
<td>34</td>
<td>29</td>
<td>45</td>
<td>40</td>
<td>56</td>
<td>51</td>
</tr>
</tbody>
</table>

### Class of 2020
- AVIT 102
- AVIT 103
- AVIT 222
- AVIT 303
- AVIT 306
- AVIT 308
- AVIT 324
- AVIT 357
- AVIT 380
- AVIT 408

### Class of 2021
- AVIT 102
- AVIT 103
- AVIT 222
- AVIT 303
- AVIT 306
- AVIT 328
- AVIT 357
- AVIT 390
- AVIT 396

### Class of 2022
- AVIT 102
- AVIT 103
- AVIT 222
- AVIT 303
- AVIT 306
- AVIT 328
- AVIT 390
- AVIT 396

### Class of 2023
- AVIT 102
- AVIT 103
- AVIT 103F
- AVIT 103F
- AVIT 103F
V. Estimated Resources Required for Program Implementation and First Cycle Operation

The first members of the BSAS teaching staff will be Instructors. UH Hilo will hire one Instructor ($54,000/year) and one APT (starting at $46,512, PBB, Step 1) in Year 1 (AY 2016–17). UH Hilo will hire a second instructor in Year 2, a third instructor in Year 3, and a fourth instructor in Year 4. The salary cost in Year 4 (and thereafter) will be $248k, as long as the program is Provisional. Instructor cost will stay steady but the APT will continue to increase at a 2% rate.

The equipment cost, mostly for flight simulation hardware and software, is expected to be $20k in Year 1. Library costs will be $10k in Year 1. There will be a facility fee of $60k/year to lease the Foreign Trade Center at the Hilo Airport. There will be a one-time accreditation costs of $10k in Year 4. We project 2% annual inflation in costs, aside from the salaries of Instructors. Thus the total cost of the program to UH Hilo, at maturity (Year 4), will be $370,877. Instructors will be hired while the BSAS program is provisional. After the program is Established, and as UH Hilo loses Instructors to attrition, we can consider recruiting tenure-track faculty to augment the research component of the program. Lecturers will not be required as long as we have 4 Instructors on staff.

<table>
<thead>
<tr>
<th>Table 10. Resource Cost Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
</tr>
<tr>
<td>Instructors</td>
</tr>
<tr>
<td>APT</td>
</tr>
<tr>
<td>Lecturer</td>
</tr>
<tr>
<td>Library</td>
</tr>
<tr>
<td>Airport Facility</td>
</tr>
<tr>
<td>Lab Equip</td>
</tr>
<tr>
<td>Accreditation</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

A. Existing Physical Resources of CAFNRM and Partnership with Other Departments

All the general education and BSAS program courses can be accommodated within existing classrooms.

B. Facility Requirements for Proposed New Courses

Facility requirements include classrooms, laboratories, community engineering worksites, and offices.

- Classroom space will be provided for the expected 56 students once the program has reached steady-state in FY19/20, but space is available to accommodate more students. Existing classroom space is available on the UH Hilo campus and is sufficient to house the first 20 students.
• A flight simulation lab will be required on campus with 10 computer stations at an approximate cost of $20,000 for FY2015/16. This cost will recur annually and is expected to inflate at 2%. Ten additional units will be acquired yearly to match projected enrollment growth. At Year 4 the computers purchased in Year 1 will be out-dated and phased out. The Computer Science department has existing computer labs which may be retrofitted to accommodate the simulations equipment. Lab equipment may be maintained by computer science personnel, but simulations courses will require guidance by an Aeronautical Science Instructor.

• Aircraft and hangar space at the flight line will be provided in consultation with the flight provider. UH Hilo will provide the airport space and facilities for flight instruction to take place. Leased property will be used in the provisional stage.

• Office space for four Instructors and one APT will be provided on campus. Existing office space is available on the UH Hilo campus and is sufficient to house the first faculty and staff additions.

• We will lease Foreign Trade Zone space at the Hilo Airport for $60,000 in Year 1. Our business plan assumes 2% annual inflation.

C. Faculty
   It is estimated that at full implementation, the program will require 4 Instructors.

D. Equipment and Supplies
   The costs are estimated at $20,000 yearly for equipment. Our business plan assumes 2% annual inflation.

E. Library Support
   The program partly draws on existing courses, but new books, archived databases and case files will need to be purchased by the library. Additional support for expanding collections at the library would require approximately $10,000 per year. Our business plan assumes 2% annual inflation.

F. Accreditation Cost
   Approximately $10,000 in accreditation costs will accrue beginning Year 4 until the completion of the first graduating class.

G. Lab Support Staff and Administrative Staff
   One new APT staff member budgeted at $46,512 (PBB Step 1), with a 2% salary increase per year. The APT is responsible for:
   • performing liaison duties with the FAA
   • consulting with airport environment managers
   • supporting public relations
   • supporting students
VI. How Efficient Will the Program Be?

The Academic Cost and Revenue Template for the BSAS program is displayed on the following page. An explanation of calculations for the template is provided immediately after. Our revenue projections are deliberately conservative. We assume that the UH Hilo published tuition schedule for the 2016–17 academic year will remain constant in subsequent years. Tuition revenues will exceed costs to UH Hilo after Years 2–4.
<table>
<thead>
<tr>
<th>Campus</th>
<th>University of Hawaii at Hilo</th>
<th>Program</th>
<th>BS in Aeronautical Science</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Academic Program Cost and Revenues Template: New Program (Updated 10/31/12)</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Provisional Years</strong></td>
<td>(2 yrs for Certificate, 3 yrs for Associate's Degree, 6 yrs for Bachelor's Degree, 3 yrs for Master's Degree, 5 yrs for Doctoral Degree)</td>
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<tr>
<td><strong>Enter Academic Year (i.e., 2011-2012)</strong></td>
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<tr>
<td>Students &amp; SSH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Headcount Enrollment (Fall)</td>
<td>20</td>
<td>34</td>
<td>45</td>
</tr>
<tr>
<td>B. Annual SSH</td>
<td>600</td>
<td>1,020</td>
<td>1,350</td>
</tr>
<tr>
<td><strong>Direct and Incremental Program Costs Without Fringe</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Instructional Cost without Fringe</td>
<td>$54,000</td>
<td>$108,000</td>
<td>$162,000</td>
</tr>
<tr>
<td>C1. Number (FTE) of FT Faculty/Lecturers</td>
<td>1.00</td>
<td>2.00</td>
<td>3.00</td>
</tr>
<tr>
<td>C2. Number (FTE) of PT Lecturers</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>D. Other Personnel Costs</td>
<td>$46,512</td>
<td>$47,448</td>
<td>$48,396</td>
</tr>
<tr>
<td>E. Unique Program Costs</td>
<td>$90,000</td>
<td>$91,800</td>
<td>$93,636</td>
</tr>
<tr>
<td>F. Total Direct and Incremental Costs</td>
<td>$190,512</td>
<td>$247,248</td>
<td>$304,032</td>
</tr>
<tr>
<td><strong>Revenue</strong></td>
<td></td>
<td></td>
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<tr>
<td>G. Tuition</td>
<td>$153,120</td>
<td>$260,304</td>
<td>$344,520</td>
</tr>
<tr>
<td>G1. Residential tuition rate per credit hour</td>
<td>$319</td>
<td>$319</td>
<td>$319</td>
</tr>
<tr>
<td>H. Other</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>I. Total Revenue</td>
<td>$153,120</td>
<td>$260,304</td>
<td>$344,520</td>
</tr>
<tr>
<td><strong>Net Cost (Revenue)</strong></td>
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<tr>
<td>$37,392</td>
<td>$(13,056)</td>
<td>$(40,438)</td>
<td>$(57,859)</td>
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<tr>
<td><strong>Program Cost per SSH with Fringe</strong></td>
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<tr>
<td>K. Instructional Cost with Fringe/SSH</td>
<td>$122</td>
<td>$143</td>
<td>$162</td>
</tr>
<tr>
<td>K1. Total Salary FT Faculty/Lecturers</td>
<td>$54,000</td>
<td>$108,000</td>
<td>$162,000</td>
</tr>
<tr>
<td>K2. Cost including Fringe of K1</td>
<td>$72,900</td>
<td>$145,800</td>
<td>$218,700</td>
</tr>
<tr>
<td>K3. Total Salary PT Lecturers</td>
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<td>-</td>
<td>-</td>
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<tr>
<td>K4. Cost including Fringe of K3</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>L. Support Cost/SSH</td>
<td>$442</td>
<td>$442</td>
<td>$442</td>
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<tr>
<td>L2. System-wide Support/SSH</td>
<td>$47</td>
<td>$47</td>
<td>$47</td>
</tr>
<tr>
<td>L3. Organized Research/SSH</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>M. Total Program Cost/SSH</td>
<td>$564</td>
<td>$565</td>
<td>$604</td>
</tr>
<tr>
<td>N. Total Campus Expenditure/SSH</td>
<td>$728</td>
<td>$728</td>
<td>$728</td>
</tr>
<tr>
<td><strong>Instruction Cost with Fringe per SSH</strong></td>
<td></td>
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<tr>
<td>K. Instructional Cost/SSH</td>
<td>$122</td>
<td>$143</td>
<td>$162</td>
</tr>
<tr>
<td>O. Comparable Cost/SSH</td>
<td>$535</td>
<td>$535</td>
<td>$535</td>
</tr>
<tr>
<td>O1. Program used for comparison</td>
<td>University of Hawaii at Hilo/College of Agriculture, Forestry and Natural Resources Management</td>
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<tr>
<td><strong>Reviewed by Campus, VC for Administrative Affairs</strong></td>
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<tr>
<td><em>Cherrie Sibai</em></td>
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<td><em>1/22/2015</em></td>
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</table>
Instructions:

Please explain the calculation of the program's educational costs using the following formulas:

A. Headcount Enrollment: Headcount enrollment of majors each Fall semester. Located at URL: http://www.hawaii.edu/iro/maps.php?title=Fall+Enrollment+Report Campus data may be used when majors are a subset of enrollment report in IRP Reports.

B. Annual SSH: Course Registration Report located at URL: https://www.hawaii.edu/iro/registration/login.do? (UH login required). Add the SSH for the Fall and Spring reports to obtain the annual SSH. This is all SSH taught by the program, including to non-majors. Adjust if majors are subset of SSH reported.

C. Instructional Cost without Fringe (automated calculation): Direct salary cost for all faculty and lecturers teaching in the program. *Formula for column E: =IF(OR(E29<""),E31=""),E29+E31,"")

C1. Number of full time faculty and lecturers who are >0.5 FTE

C2. Number of part time lecturers who are <0.5 FTE

D. Other Personnel Cost: Salary cost (part or full time) for personnel supporting the program (APT, clerical lab support, advisor, etc.). This includes personnel providing necessary support for the program who may not be directly employed by the program and may include partial FTEs. Add negotiated collective bargaining increases and 4% per year for inflation thereafter.

E. Unique Program Cost: Cost specific to the program for equipment, supplies, insurance, etc. For provisional years, this would be actual cost. For established years, this would be projected costs using amortization for equipment and add 4% per year for inflation thereafter.

F. Total Direct and Incremental Cost: C + D + E. *Formula for column E: =IF(OR(E12<""),E15<=0,E16>0),SUM(E12,E15,E16),"")

G. Tuition: Annual SSH X resident tuition rate/credit. *Formula for column F: =IF(E10=0,E10*E21,"")

H. Other: Sources of revenue including grants, program fees, etc. This should not include in-kind contributions unless the services or goods contributed are recorded in the financial records of the campus and included in Direct and Incremental Costs in this template.

I. Total Revenue: G + H. *Formula for column E: IF(OR(E20<""),E22<=0),SUM(E20,E22),"")

J. Net Costs: F - I. This is the net incremental cost of the program to the campus. A negative number here represents net revenue (i.e., revenue in excess of cost). If there is a net cost, please explain how this cost will be funded. *Formula for column E: =IF(AND(E17<""),E23<=""),E17-E23,"")

K. Instructional Cost with Fringe/SSH: (K2 + K4) / B. *Formula for column E: =IF(E10<""),SUM(E35,E36)/E10,"")

K1. Salaries without Fringe of Full Time Faculty or Lecturers who are >0.5 FTE based on FTE directly related to the program. Add negotiated collective bargaining increases and 4% per year for inflation thereafter.

K2. K1 * 1.35. *Formula for column E: =IF(E29<""),E29+1.35

K3. Salaries without Fringe for Lecturers who are <0.5 FTE based on FTE directly related to the program. Add negotiated collective bargaining increases and 4% per year for inflation thereafter.

K4. K3 * 1.05. *Formula for column E: =IF(E31<""),E31+1.05

L. Support Costs/SSH: The campus' non-instruction expenditure/SSH - Systemwide Support - Organized research (UHM only) as provided by UH Expenditure Report. Located at URL: http://www.hawaii.edu/iro/maps.php?title=Expenditures+Study. *Formula for column D: =IF(OR(D37>0,D38>0,D39>0),D37+D38-D39,"")

For example, from the 2010-11 UH Expenditure Report (URL: http://www.hawaii.edu/cgi-bin/iro/maps?euhfy1011.pdf), the Support Expenditure/SSH per campus is:

- UHM $507.00 + $56 = $563 for organized research = $435
- UHH $437 + $45 = $482
- UHWO $230 + $28 = $258
- Haw CC $155 + $34 = $189
- Hon CC $234 + $44 = $278
- Kap CC $123 + $29 = $152
- Kau CC $328 + $59 = $387
- Lee CC $123 + $27 = $150
- Maui CC $160 + $35 = $195
- Win CC $264 + $40 = $304

M. Total Program Cost/SSH: K + L. *Formula for column E: =IF(OR(E28<""),E33=""),E28+E33,"")

N. Total Campus Expenditure/SSH: Taken from UH Expenditure Report. For example, for 2010-11

O. Comparable Program/Division Instructional Cost/SSH: Taken from UH Expenditures Report (URL: http://www.hawaii.edu/iro/maps?title=Expenditures+Study&) or campus data, as available. Please note in the space provided, the program used for the comparison.
VII. How Will the Effectiveness of the Program Be Demonstrated?

The BSAS degree program will be evaluated using the assessments created by the CAFNRM, with appropriate modifications. The CAFNRM program currently has the following assessments:

- **Course Assessments**
  Every semester, the CAFNRM administers a student survey of all courses to determine the effectiveness of each course and its instructor. CAFNRM also administers a student survey to determine the effectiveness of the course in achieving educational program outcomes and collects samples of student work.

- **Program Assessment**
  Several performance indicators will provide a measure of Program effectiveness. Elements which comprise the assessment include:

  1) Certification rate. Are students in the program acquiring their FAA-granted certificates within an acceptable amount of time?

  2) Program completion rate. What percentage of students who enrolled completed the program?

  3) Hiring rate. How many students who completed the program achieved related employment post-graduation?

  4) The BSAS program will also seek external program assessment through accreditation.

- **Student Advisory Board**
  The CAFNRM has a Student Advisory Board made up of undergraduate volunteer representatives. Every year they compose a student survey that is administered to all students in the College. They provide a written report of the results of the survey.

- **Community Advisory Board**
  The College will set up a Community Aviation Advisory Board made up of representatives from local businesses and organizations. The Board will meet once per year unless additional meetings are necessary.

- **Alumni Surveys**
  The College will administer an alumni survey to assess if BSAS degree graduates have achieved their educational objectives. In addition, the survey will determine if students embody the desired graduate attributes.
(societal awareness, professional skills, engineering competence) and are working in a STEM-related field. The survey will be conducted every two to five years.

- **Student Learning Assessment**
  Student learning will be measured by a variety of methods, including, but not limited to:

  1) Quizzes, midterm examinations, and final examinations aligned to measure the attainment of course-specific student learning outcomes

  2) Individual and team problem-based projects that demonstrate students' abilities to apply field-related laws and concepts to real-world scenarios

  3) Written reports and presentations to measure the depth and breadth of understanding targeted field issues, as well presentation and writing skills

  4) Simulation exercises that require attainment of field-established skills for progression to more challenging levels

  5) Flight exercises that require mastery of aviation-related protocols and procedures

- **Accreditation**
  UH Hilo's new Department of Aeronautical Science will apply for accreditation of the Bachelor of Science in Aeronautical Science degree program through AABI, the national accreditation organization for aviation programs, after the first class graduates.

  The accreditation criteria have been reviewed to ensure alignment with the proposed program. (See AABI Alignment Table.)
AABI Alignment Table

### 3.3.1 General: Aviation programs MUST demonstrate that graduates are able to:

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<tbody>
<tr>
<td>b.</td>
<td>analyze and interpret data</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
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<td>c.</td>
<td>work effectively on multidisciplinary and diverse teams</td>
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<td>d.</td>
<td>make professional and ethical decisions</td>
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<td>e.</td>
<td>communicate effectively, using both written and oral communication skills</td>
<td>X</td>
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<td>f.</td>
<td>engage in and recognize the need for lifelong learning</td>
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<td>g.</td>
<td>assess contemporary issues</td>
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<tr>
<td>h.</td>
<td>use the techniques, skills, and modern technology necessary for professional practice</td>
<td>X</td>
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<td>i.</td>
<td>assess the national and international aviation environment</td>
<td>X</td>
<td>X</td>
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<tr>
<td>j.</td>
<td>apply pertinent knowledge in identifying and solving problems</td>
<td>X</td>
<td>X</td>
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<td>k.</td>
<td>apply knowledge of business sustainability to aviation issues</td>
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</tr>
</tbody>
</table>

### 3.3.2 Aviation Core: Aviation programs MUST demonstrate that their graduates are able to:

1. Describe the professional attributes, requirements or certifications, and planning applicable to aviation careers.
2. Describe the principles of aircraft design, performance, and operating characteristics, and the regulations related to the maintenance of aircraft and associated systems.
3. Evaluate aviation safety and the impact of human factors on safety.
4. Discuss the impact of national and international aviation law, regulations, and labor issues on aviation operations.
5. Explain the integration of airports, airspace, and air traffic control in managing the National Airspace System.
6. Discuss the impact of meteorology and environmental issues on aviation operations.
VIII. References


IX. Appendices

A. Appendix A: Table of Projected Salaries

Once BSAS graduate pilots get more experience, they will eventually be hired by the major US airlines. The table below shows salaries for some major airlines:

<table>
<thead>
<tr>
<th>Airline</th>
<th>Year 1</th>
<th>Year 5</th>
<th>Year 10</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delta</td>
<td>$58,579</td>
<td>$121,915</td>
<td>$167,437</td>
<td>$244,550</td>
</tr>
<tr>
<td>American</td>
<td>$33,600</td>
<td>$95,040</td>
<td>$170,880</td>
<td>$204,480</td>
</tr>
<tr>
<td>United</td>
<td>$58,483</td>
<td>$130,641</td>
<td>$171,360</td>
<td>$225,389</td>
</tr>
<tr>
<td>Southwest</td>
<td>$54,720</td>
<td>$123,619</td>
<td>$201,427</td>
<td>$205,872</td>
</tr>
<tr>
<td>Hawaiian</td>
<td>$32,400</td>
<td>$90,000</td>
<td>$178,200</td>
<td>$179,100</td>
</tr>
<tr>
<td>Alaska</td>
<td>$45,847</td>
<td>$100,345</td>
<td>$167,052</td>
<td>$173,173</td>
</tr>
<tr>
<td>FedEx</td>
<td>$58,725</td>
<td>$123,041</td>
<td>$198,224</td>
<td>$242,893</td>
</tr>
<tr>
<td>UPS</td>
<td>$33,946</td>
<td>$128,698</td>
<td>$217,939</td>
<td>$227,674</td>
</tr>
<tr>
<td>Average</td>
<td>$46,963</td>
<td>$108,169</td>
<td>$166,784</td>
<td>$198,625</td>
</tr>
</tbody>
</table>

*Professional Pilot, 2013
Appendix B: Maryknoll School

1. Letter from President Perry Martin

MARYKNOLL SCHOOL

April 13, 2015

Aloha,

Maryknoll School has recently undergone master and strategic planning updates that have incorporated a school differentiated in pedagogy and themed in specialty career paths. In the fall of 2016, Maryknoll School will open its state of the art STEM and Engineering facility located at Civil Air Patrol Headquarters adjacent to the Honolulu International Airport.

The STEM and Engineering facility will house the Maryknoll Mx Scholars Program that will specialize in four key curricular studies:

1) Aeronautical Sciences
2) Engineering
3) Robotics
4) Cyber

The Mx Scholars Program will focus on these curricular areas offering students the opportunities to fly (earn Private Pilot Licenses and Instrument ratings), become certified in manufacturing operations, and instill academic excellence through differentiated instruction, hands-on engaged learning and blended learning. These pedagogical approaches to curricular studies will exponentially enhance student growth in their respective zones of proximal development.

Maryknoll School intends to produce academic scholars that aspire to continue and further their education in career fields of STEM and aerospace by immersing students with this type of specialty curriculum starting at the High School level. To ensure quality of the curriculum and career training, Maryknoll School has partnered with the Civil Air Patrol, National Security Administration and BAE Systems.

I hope this strategic initiative can be utilized as a feeder program toward postsecondary education and look for to the development of aeronautical sciences program at the University of Hilo.

Mahalo for your time and consideration,

Perry K. Martin
President
Maryknoll School

Office of the President • 1526 Alexander Street • Honolulu, Hawaii 96822-4940 • Tel: (808) 973-6120
Email: president@maryknollschool.org

36
Emergency Management Agency

24/7 alert on behalf of the community is a major emergency management effort in Hawaii. The Civil Air Patrol (CAP) will join emergency services as a CAP Cadet, mix engineering services.

The CAP Cadet Program is open to students with the Hawaii Wing Civil Air Patrol. We are excited to participate in the CAP cadet program. Hawaiian School district.

All students of the CAP engineering program will be required to attend.

Civil Air Patrol Missions

Air Cadet with Aerospace Education

Mariannah School

Leading STEM Education
Appendix C: Central Washington University

FLIGHT TRAINING AGREEMENT
CENTRAL WASHINGTON UNIVERSITY

This FLIGHT TRAINING AGREEMENT ("Agreement") is entered into by and between Central Washington University ("CWU" or "University"), 400 East University Way, Ellensburg, Washington 98926, and AVIASCQ, Inc., doing business as IASCO Flight Training ("IFT" or "Contractor"), 6040 Lockheed Drive, Redding, California 96002. The purpose of this Agreement is to provide flight instruction for CWU aviation students (hereafter referenced as the "Flight Training Program").

I. RECITALS

1.1 University. CWU is a public institution of higher education established by the State of Washington with its main campus located in Ellensburg, Washington. CWU through its Department of Aviation offers a Bachelor of Science Degree in Professional Pilot. This accredited degree program combines academic studies with flight training to prepare graduates for careers within the air transportation industry.

1.2 Contractor. IFT is a flight training company located in Redding, California. IFT employs qualified flight instructors and other personnel necessary to provide flight training meeting the requirements for pilot and flight instructor certifications and ratings under 14 CFR Part 141 and other applicable FAA regulations. This Agreement between CWU and IFT is executed with the understanding that IFT is now or soon will be operating under new ownership and new management.

1.3 Contract Novation. The recitals under ¶¶ 1.1 and 1.2 hereof are incorporated herein by reference. The parties to this Agreement mutually acknowledge that CWU and IFT previously entered into a flight training agreement on March 14, 2014, as amended through May 9, 2014, and that IFT subsequently notified CWU of IFT’s inability to perform its obligations thereunder. The parties to this present Agreement mutually agree that this new Agreement shall not become effective until IFT is operating under the new ownership and management referenced in ¶ 1.2 above. Upon that event, this Agreement shall automatically substitute for the previous agreement and shall extinguish all obligations thereunder.

1.4 International Studies. It is the further intent of the parties to explore at some future date the development of an international studies program at CWU for students associated with the Jiutian International Flight Academy ("Jiutian") in Qingdao, China. The parties intend that an inter-institutional agreement for that purpose could incorporate a mutually agreeable provision that the non-resident portion of CWU student tuition paid by Jiutian students could fund the further development of the flight training infrastructure in support of the CWU/IFT Flight Training Program.

1.5 Consideration. For and in consideration of the foregoing recitals and agreements, and in further consideration of the payments and other covenants, promises, and mutual agreements provided herein, the parties hereby agree as follows.

II. FLIGHT TRAINING PROGRAM

2.1 Contractor’s Obligations.

General

(a) Program Location. Except as otherwise agreed, IFT will provide the CWU Flight Training Program at Bowers Field in Ellensburg and will operate out of CWU’s Aviation Training Center.

(b) Flight Training Courses. The Flight Training Program will consist of flight training under 14 CFR Part 141, both dual and solo, and including pre- and post-flight ground training, for CWU students enrolled through the Department of Aviation in flight certification lab courses leading to the following FAA certificates and ratings: Private Pilot Certificate (PVT), Instrument Rating (IFR), Commercial Pilot Certificate (COM), and Multi-Engine Rating (ME). Training for the Certified Flight Instructor Certificate (CFI) and, as arranged, training for
optional ratings and certificates, including CFI-Instrument (CFII) and Multi-Engine Instructor (MEI), will be conducted under 14 CFR Part 61.

(c) **Program Commencement.** IFT flight instructors and other personnel necessary to deliver the Flight Training Program must have received syllabus training and be ready to commence instruction no later than September 15 of each year, except for the first year of this Agreement when training shall commence no later than October 2014.

(d) **Training Needs.** IFT will have appropriate aircraft and qualified flight instructors available to meet the scheduled training needs of CWU students in a timely manner. CWU will conduct quarterly evaluations of student progress to determine if flight training obligations are being met. If progress is deemed unsatisfactory, IFT and CWU personnel will collaborate to determine the need for additional scheduled flights, instructors, and/or aircraft as required.

**Equipment**

(e) **Aircraft.** IFT will provide the single- and multi-engine fixed wing aircraft for the training services set forth in Attachment A and incorporated herein by reference. The aircraft will be of sufficient number to meet training requirements as determined by mutual agreement. At least one aircraft must be certified for spin training. IFT will be responsible for the fueling, storage, and maintenance of training aircraft.

(f) **Equipment.** Aircraft (with the exception of VFR spin-training specialized aircraft) must be equipped with: (i) equipment required by FAR 91.205 and 91.207; (ii) equipment required by FAR 91.215b for flight in Class B, C, D, E, and G airspace; and (iii) voice intercom, GPS navigation, and aircraft tracking systems as appropriate. In addition, multi-engine aircraft and single-engine instrument trainers must be equipped with dual communication radio, dual navigation radio, and ILS localizer and glide scope receiver.

(g) **Maintenance.** CWU will have the right to inspect and approve all aircraft and equipment used in support of the Flight Training Program. Each aircraft must be registered as a civil aircraft in the United States and must be maintained in a safe and airworthy condition as demonstrated by an appropriate airworthiness certificate. No aircraft with malfunctioning or inoperative electrical, avionic, or mechanical components shall be used for training purposes except as mutually agreed and otherwise consistent with FAA regulations. Maintenance records must be available for review at all times by CWU Department of Aviation personnel. CWU students will not be charged for flights cancelled because of mechanical issues.

**Personnel**

(h) **Assistant Chief Flight Instructor.** IFT will employ an Assistant Chief Flight Instructor as described under 14 CFR 141.91 for the satellite base of operations at Bowers Field. The Assistant Chief Flight Instructor will act as the liaison between IFT and the CWU Assistant Chief Ground Instructor. The Assistant Chief Flight Instructor shall perform duties as outlined in applicable program operating procedures described in Section III hereof.

(i) **Instructor Qualifications.** Flight instructors must hold at least a bachelor’s degree from an accredited institution and must be appropriately rated for the courses for which they are approved to provide training. IFT will give priority consideration to graduates of CWU’s Professional Pilot degree program in hiring instructors for the CWU Flight Training Program. CWU retains the right to approve the appointment and qualifications of IFT flight instructors assigned to the Flight Training Program.

(j) **Training Load.** IFT will employ sufficient qualified instructors to meet the training needs of the CWU Flight Training Program. Appropriate instructor/student ratios will be determined by mutual agreement and will be subject to periodic review. Flight instructors will be limited to a duty schedule of no more than six days per week and no more than fourteen hours of consecutive duty time within a 24-hour period.
2.2 University’s Obligations.

(a) **Facilities.** In support of the Flight Training Program, CWU will provide its Aviation Training Center facility at Bowers Field for use by IFT personnel and by faculty, staff, and students of CWU’s Department of Aviation. Such facility use will include the use of CWU computers, Internet access, telephones, utilities, and office supplies, provided that such use shall be strictly limited for purposes directly and exclusively in support of the CWU Flight Training Program.

(b) **Dispatching.** CWU will perform all required flight dispatching functions utilizing CWU personnel, equipment, and supplies. It is understood that CWU, to the extent feasible, may employ CWU aviation students to assist with dispatching functions.

(c) **Ground Courses.** Unless otherwise agreed, CWU will conduct all ground school courses meeting the academic completion requirements of the Professional Pilot degree. CWU will perform a quarterly review of both the ground and flight school curriculum to ensure compatibility and to minimize redundant ground school instruction.

III. PROGRAM OPERATING PROCEDURES

3.1 **Base of Operation.** Unless otherwise arranged, all IFT aircraft supporting the Flight Training Program will be based at Bowers Field. All flight operation and instruction for a specific phase of training shall commence and terminate at Bowers Field, unless otherwise authorized by CWU. Overnight training flights must be approved in advance by IFT’s Assistant Chief Flight Instructor and by CWU’s Assistant Chief Ground Instructor.

3.2 **Hours of Operation.** Weather conditions permitting, the Flight Training Program shall operate not less than a normal eight-hour workday for a minimum of six days a week, excluding holidays. It is IFT’s responsibility to ensure that aircraft are operational in cold weather conditions.

3.3 **Operating Procedures.** IFT will develop and maintain Standard Operating Procedures (SOP) for conducting the CWU Flight Training Program. The SOP will be based on guidance provided by applicable Federal Aviation Regulations (FAR) under Title 14 CFR, FAA Advisory Circulars (ACs), and the FAA Aeronautical Information Manual (AIM). The SOP and any subsequent revisions, all of which shall be incorporated herein by reference, must be approved both by IFT and by CWU. The SOP manual, and any revisions, will be provided to all CWU students participating in the Flight Training Program.

3.4 **Safety Procedures.** CWU and IFT will collaborate in developing and maintaining a Safety Management System (SMS) specific to the CWU Flight Training Program which shall be incorporated herein by reference and which shall at a minimum comply with applicable federal safety regulations and directives. The SMS will incorporate incident reporting and response procedures, an emergency response plan, and a procedure for the anonymous reporting of potential safety violations or concerns. An “incident” for purposes of this Agreement shall be as defined by the FAA, but shall also include any deviation from the approved SMS.

3.5 **Student Records Management.**

(a) IFT will maintain and provide access to a Talon Systems “ETA” data management software program which IFT will use for tracking and reporting the progress of student training.

(b) IFT will maintain student progress records for each student recording at least the following information: (i) scheduled weekly training sessions, (ii) scheduled sessions that were cancelled, “bumped,” or rescheduled by IFT or by the student, (iii) brief narrative of each flight; including the lesson number and whether the lesson was completed or the reason it was not completed; (iv) a written evaluation at each flight stage check recording the student’s progress in the syllabus.
(c) Authorized CWU and IFT personnel will have access at all times to student training records. Student training records will be maintained for at least six calendar years after a student successfully completes or discontinues a training course.

(d) The parties understand that student training records are confidential “student education records” protected by the Family Educational Rights and Privacy Act, 29 U.S.C. 1232g. Student records shall be used by the parties solely as needed for the purpose of providing authorized flight training and shall not be disclosed to any third party without the student’s written consent unless otherwise required by law.

3.6 Stage Checks. Authorized CWU Aviation faculty will conduct periodic stage checks after receiving the required standardization training. IFT will charge students the normal instructional rate for stage checks conducted by CWU faculty, but CWU faculty shall receive no compensation from IFT for conducting the checks. Amounts billed to students for stage checks conducted by CWU faculty will be deposited in a separate account and used to pay for standardization training provided by IFT to CWU faculty, as well as for any books or materials needed for CWU faculty to conduct the authorized stage checks.

3.7 Accreditation. CWU is regionally accredited through the Northwest Commission on Colleges and Universities (“NWCCU”). CWU further intends to meet the requirements for obtaining specialized accreditation for its Department of Aviation programs through the Aviation Accreditation Board International (“AABI”). The parties to this Agreement intend and agree that the CWU Flight Training Program will be conducted in accordance with applicable accreditation standards. IFT will not be responsible for additional operating costs incurred solely as a result of complying with accreditation standards. The parties nonetheless agree that compliance with accreditation standards shall be deemed a material term of this Agreement. In furtherance whereof, the parties agree that the CWU Department of Aviation shall have the final authority and ultimate responsibility to approve the content and delivery of flight training courses, the appointment and qualifications of flight instructors, and the evaluation of student progress, which approvals shall not be unreasonably withheld.

IV. STUDENT ENROLLMENT AND FEES

4.1 Client Services. This Agreement constitutes a “client services contract” under RCW 39.26.010(5) and 39.26.125(6) for the purpose of providing training program services directly to CWU’s students. It is understood and agreed that all fees paid to IFT for the Flight Training Program shall be paid from student course fees collected by CWU and passed through to IFT.

4.2 Student Enrollment. All students participating in the CWU Flight Training Program must apply for admission to, and be accepted by, CWU and its Department of Aviation. CWU shall have sole discretion to enroll students in the Flight Training Program, and no student shall begin any flight training course for academic credit without written authorization from CWU. IFT may refuse to provide training to any student whom IFT identifies as presenting an immediate safety risk, but the suspension of a student for more than a single flight must be approved by CWU.

4.3 Training Fee Schedule. Flight training fees for CWU students shall be in accordance with the training fee schedule published by CWU as of September 2014 for the 2014-15 academic year and incorporated herein as Attachment A to this Agreement. Training fees for subsequent years may be negotiated by the parties. Unless otherwise agreed in writing, proposed fee increases must be submitted for CWU approval by January 1 of each year for the ensuing academic year.

4.4 Payment of Course Fees. In order for IFT to be reimbursed from CWU student course fees, no student may begin flight training until the student has paid all required course fees to CWU. Course fees must be paid no later than the first day of classes or first day of enrollment, whichever is later. CWU will transfer all student course fees paid to IFT’s account no earlier than one day after the quarterly “Add-Drop” date and upon receiving an itemized invoice from IFT.

4.5 Contractor Reimbursement. Charges for flight training will be applied to each student’s account, and IFT will be reimbursed for flight training, at the rates shown in Attachment A. If a student expends the entire fee for a training lab and still has flight requirements to meet, the student must make additional fee
payments through CWU, or directly to IFT, before being permitted to continue the training. Within five days of the end of each quarter or upon a student’s withdrawal from a training course, IFT will reconcile each student account and refund any unused training fees to CWU. CWU will be responsible for returning the unused fees to the student or other authorized funding source. In no event will IFT refund unused training fees directly to the student.

4.6 Cancellations. Students will not be charged for training sessions cancelled by IFT. If IFT must reschedule or cancel a student’s scheduled training session on less than 24 hours’ notice, IFT will make every effort to notify the student by phone, email, or otherwise. Efforts to notify the student must be documented in the student’s training record. Students will be charged for training sessions cancelled by the student on less than 24 hours’ notice.

4.7 Training Materials and Tests. It is understood and agreed that IFT will have no responsibility for the cost of student training materials, FAA computerized tests, or the student registration fee for the ETA data management system. Such items are the separate responsibility of CWU flight students or will be absorbed into the existing student fee structure for ground school training.

4.8 Unscheduled Training. CWU and IFT recognize that students may want to fly on their own during the summer and other scheduled breaks. Students choosing to fly outside the regular quarterly training periods may be required to make payments directly to IFT before being permitted to fly.

V. CONTRACT TERM, TERMINATION, DISPUTES

5.1 Term. The term of this Agreement shall be for a period of five years beginning on September 1 and ending on August 31 of each year, except for the first year which will begin in October 2014. This Agreement may be renewed upon mutual agreement for additional terms of up to five years each.

5.2 Termination.

(a) This Agreement may be terminated at any time by mutual written agreement of the parties.

(b) The Agreement may be terminated by either party for a material breach by the other party of that party’s obligation(s) hereunder. In the event of breach, the aggrieved party must provide written notice to the breaching party and allow fifteen (15) days to cure. If the breach cannot be cured within that time or such other time as deemed reasonable by the aggrieved party, the Agreement may be terminated immediately by written notice of the aggrieved party. Termination for breach shall not be deemed to limit any of the terminating party’s contractual remedies as against the breaching party.

(c) The Agreement may be terminated by either party by giving written notice by January 1 of each year that the parties are unable to agree on a proposed student training fee schedule for the ensuing academic year.

5.3 Disputes. Any disputes between the parties arising under or related to this Agreement shall be resolved informally if possible, but if the parties cannot so resolve their differences, then arbitration shall provide the sole and exclusive remedy for addressing the contract dispute. The parties shall jointly select one arbitrator acceptable to both parties. If the parties cannot agree on an arbitrator, the Yakima Dispute Resolution Center shall be requested to choose an arbitrator. The fees and expenses of the arbitrator shall be shared equally by both parties to this Agreement, and each party shall bear its own costs and attorney fees. Arbitration shall be conducted according to the commercial arbitration procedures established by the American Arbitration Association. The arbitrator’s decision or award shall be final and binding on both parties.

5.4 Essential Terms. Time and safety are each of the essence of the terms of Sections II and III of this Agreement relating to IFT’s provision of flight training services to CWU students.
VI. GENERAL TERMS AND CONDITIONS

6.1 Assignment. This Agreement shall extend to and be binding upon and inure to the benefit of the successors and assignees of the respective parties. However, this Agreement may not be assigned or subcontracted by either party without the other party’s express written consent.

6.2 Independent Capacity. This Agreement is intended to create an independent contractor relationship. Each party to the Agreement shall act in an independent capacity and not as an agent or representative of the other party. The employees or agents of each party who are engaged in the performance of this Agreement shall continue to be the employees or agents of that party and shall not be considered for any purpose to be the employees or agents of the other party.

6.3 Indemnification. Each party to this Agreement shall be responsible for its own acts or omissions and for those of its directors or trustees, officers, employees, and authorized agents. Neither party shall be responsible to the other party for the acts or omissions of persons or entities not a party to this Agreement. It is expressly understood and agreed that CWU students participating in the Flight Training Program are not parties to the Agreement and are not the employees or agents of either party.

6.4 Insurance. IFT during the term of this Agreement will maintain appropriate insurance and will provide CWU with a certificate, binder, or policy of liability insurance acceptable to CWU with minimum coverages of (a) $1,000,000 per occurrence for products and premises liability, and (b) aircraft liability insurance of $3,000,000 combined single limit on all four-passenger or smaller aircraft and $5,000,000 combined single limit on larger aircraft. The required insurance policies must name Central Washington University and the State of Washington as additional insureds and must be primary to other insurance. CWU must be given 45 days’ written notice before such insurance is modified or canceled.

6.5 Non-Discrimination. The Flight Training Program will be conducted by both parties in compliance with applicable federal and state laws prohibiting discrimination in education, employment, or public accommodations based on age, sex, marital status, sexual orientation, race, creed, color, national origin, genetic information, honorably discharged veteran or military status, or the presence of any sensory, mental, or physical disability or the use of a trained dog or service animal by a person with a disability, unless based upon a bona fide occupational qualification.

6.6 Records and Audits. The parties recognize that business and training records created, maintained, or used in the performance of this Agreement may constitute public records subject to the public disclosure and retention requirements under applicable state law. Each party to this Agreement will retain its business and training records as well as financial data relating to the CWU Flight Training Program for the applicable retention period(s) and will make such records and data available upon request for inspection and audit by the other party or by authorized representatives of the Washington State Auditor.

6.7 Complete Agreement; Modification. This Agreement constitutes the entire agreement between the parties and supersedes any and all other agreements, understandings, negotiations and discussions, oral or written, express or implied. The parties agree that no other representations, inducements, promises, agreements, or warranties relating to this Agreement, oral or otherwise, have been made to or by them. No modification or waiver of this Agreement shall be valid or binding unless signed in writing by the parties.

6.8 Governing Law; Venue; Severability. This Agreement shall be governed by the laws of the State of Washington. Venue for any dispute under this Agreement shall be in Kittitas County, Washington. If any provision of this Agreement shall be held invalid, such invalidity shall not affect the other provisions of this Agreement that can be given effect without the invalid provision, if such remainder is consistent with applicable law and with the fundamental purpose of this Agreement, and to this end the provisions of this Agreement are declared to be severable.

6.9 Waiver. The waiver by a party of any default or breach of this Agreement, or the failure of a party to enforce any provision hereof or to exercise any right or privilege hereunder, shall not be deemed to waive any prior or subsequent breach or default, the enforcement of any provision hereof, or the exercise of any right or
privilege hereunder, unless otherwise stated in a writing signed by an authorized representative of the party and attached to the original Agreement.

6.10 Notices. Written notices required or permitted to be provided by a party to the other party under this Agreement may be provided by personal delivery, legal courier service, or certified mail, postage prepaid and return receipt requested. Notice may be provided by regular first class mail if simultaneous notice is provided by electronic mail. Notices will be sent to the parties at the following mailing addresses:

President
IASCO Flight Training, Inc.
6460 Lockheed Drive
Redding, CA 96002

Dean, College of Education & Professional Studies
Central Washington University
400 East University Way
Ellensburg, WA 98926-7515

The address of a party for the receipt of notice may be changed at any time by written notice provided in accordance with ¶ 6.10.

6.11 Contract Administration. The contract administrator and principal point of contact for each party to this Agreement shall be as follows, subject to change by written notice provided in accordance with ¶ 6.10 hereof.

(a) The Contract Administrator for CWU will be the Dean of the College of Education & Professional Studies. The principal point of contact at CWU for day-to-day management of the contract will be the Chair of the CWU Department of Aviation.

(b) The Contract Administrator for IFT will be the Chief Financial Officer. The principal point of contact at IFT for day-to-day management of the contract will be the Assistant Chief Flight Instructor assigned for duty at Bowers Field.

6.12 Counterparts. This Agreement may be executed in any number of separate counterparts, each of which shall be deemed an original and which together shall constitute one and the same instrument.

IN WITNESS WHEREOF, this Agreement has been executed by and on behalf of the parties through their authorized representatives this 4th day of December 2014.

CENTRAL WASHINGTON UNIVERSITY

Marilyn Levine, Provost

DATE

IASCO FLIGHT TRAINING, INC.

Ralph Nasworthy, Chief Financial Officer

DATE
CWU-IJT Flight Training Agreement
ATTACHMENT A – Flight Training Services & Rates

CWU aviation students receiving flight training from IFT will pay flight training fees based on the following hourly rates for aircraft and instruction. Rates are subject to periodic review and may be changed by written agreement of the parties.

### Aircraft cost per type and hour

<table>
<thead>
<tr>
<th>Aircraft Type</th>
<th>Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-Engine</td>
<td>375.00</td>
</tr>
<tr>
<td>Single Engine Non-complex</td>
<td>130.00</td>
</tr>
<tr>
<td>Single Engine Complex *</td>
<td>150.00</td>
</tr>
</tbody>
</table>

*Complex = retractable landing gear

### Instructor fees per hour and type of training

<table>
<thead>
<tr>
<th>Instructor Type</th>
<th>Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flight Instruction – FTD</td>
<td>50.00</td>
</tr>
<tr>
<td>Flight Instruction – Single and Multi-engine</td>
<td>50.00</td>
</tr>
<tr>
<td>Ground Instruction</td>
<td>50.00</td>
</tr>
<tr>
<td>FAA Designated Pilot Examiner</td>
<td>400.00</td>
</tr>
</tbody>
</table>

(current Ellensburg rate)

### Estimated Total Cost for Training Course.

Estimated total flight training costs are based on the applicable hourly rates for aircraft and instructors, FTD dual and solo flight hours combined. Ground instruction time is based on 1.5 X flight instruction time for estimation purposes. FAA examiner fees are calculated for each rating at the rate in the preceding table and included in the total fee for each course. Flight times for aircraft rental for FAA practical tests are also accounted for each rating as solo rental time.

FTD rental costs are charged separately as a CWU lab fee for associated ground school courses.

<table>
<thead>
<tr>
<th>TRAINING COURSE</th>
<th>TOTAL HOURS</th>
<th>FTD HOURS</th>
<th>Single Engine Non-complex</th>
<th>Single Engine Complex</th>
<th>Multi-Engine</th>
<th>ESTIMATED COST</th>
</tr>
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<tbody>
<tr>
<td>Private Pilot Single-Engine</td>
<td>60</td>
<td>3</td>
<td>57</td>
<td>0</td>
<td>0</td>
<td>$11,910</td>
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<tr>
<td>Instrument Rating Course</td>
<td>70</td>
<td>22.5</td>
<td>47.5</td>
<td>0</td>
<td>0</td>
<td>$11,425</td>
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<tr>
<td>Commercial Pilot Course Single-Engine</td>
<td>60</td>
<td>0</td>
<td>60</td>
<td>0</td>
<td>0</td>
<td>$12,500</td>
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<tr>
<td>Commercial Pilot Multi-Engine</td>
<td>25</td>
<td>5</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Certified Flight Instructor Single-Engine</td>
<td>25</td>
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<td>1</td>
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<tr>
<td>COURSE-ONLY TOTALS</td>
<td>240</td>
<td>30.5</td>
<td>165.5</td>
<td>24</td>
<td>20</td>
<td>$50,615</td>
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D. Appendix D: Letters of Support
April 14, 2015

University of Hawai‘i System
Council of Chief Academic Officers
2444 Dole St., Honolulu, HI 96822

RE: Aeronautical Science Program, University of Hawai‘i at Hilo

I am writing in strong support of the proposed Bachelor of Science in Aeronautical Science.

This support comes from many perspectives.

First, as a student at UH Hilo from 2004 through 2013, I took a number of courses at both the undergraduate and graduate levels, and received both a Certificate (in Plant Tissue Culture – 2005) and a Bachelor of Arts (in Psychology – 2009) before entering the Master’s Program in Mental Health Counseling in 2011.

Second, as a physician, farmer and 24-year resident of the Big Island, I have seen the rapid growth in both the Big Island population and economy during that time.

Third, as a former Peace Corps volunteer in the Marshall Islands, I continue to visit those islands and to work with the expatriate community from the various Compact of Free Association (COFA) countries including the Republic of the Marshall Islands and the Federated States of Micronesia.

Fourth, as a current member of the Hawaii State House of Representatives, I fly back-and-forth weekly from Oahu to the Big Island.

Both our state and the COFA nations are composed of islands and aviation is absolutely crucial to the economies of our state and those countries. Tourism and agriculture both will have increasing needs for aviation resources of all three components of the aviation program.
I view UH Hilo as a real gem of undergraduate education and applaud this enterprising and very important addition to the undergraduate curriculum. I view it as a crucial way for the indigenous people of the Pacific to obtain the aviation training that is just not present or likely ever to be present in their countries.

For all these reasons, and many more outlined in the very thorough documentation and program plan, I enthusiastically support this program and will support it in the State Legislature as needed.

This is a great opportunity for our island, our state and our region that just cannot be squandered.

Sincerely,

Richard Creagan
House of Representatives, 5th District
TO:
University of Hawaii System
Council of Chief Academic Officers
2444 Dole Street
Honolulu, HI, 96822

Re: UH Hilo Aviation Support Letter April 20th 2015

To whom it may concern,

I am in support of the proposed UH Hilo collegiate aviation program. By having this program here in Hawaii would allow our children to maximize their potential and allow them to stay home with family and friends. This would also keep revenue here in the State of Hawaii which is critical to our sustainability as an island State.

Sincerely,
Douglas and Kuuleipulaama Dyer
2349 Ainaola Drive
Hilo, HI, 96720

A-330 Pilot Hawaiian Airlines
April 12, 2015

University of Hawai‘i System
Council of Chief Academic Officers
2444 Dole Street, Honolulu HI 96822

To Whom it May Concern,

My name is Chuck Erskine and I am the President of the Hawai‘i Island Chamber of Commerce (HICC). HICC was founded in 1898, and has been a part of our island’s business community for nearly 120 years. Our membership includes over 270 businesses, professionals and individuals who are represented by nearly 630 member representatives. The Chamber serves as an important voice of business in Hawai‘i and we strongly support the opportunity to begin building an aeronautical program and international flight training center in Hilo that would bring great educational and economic benefit to residents from Hawai‘i.

As an ocean state, Hawai‘i is dependent on aviation for transportation and business. Today, hundreds of Hawai‘i students leave the state to attend flight programs on the Mainland because of the required academic and practical training that is currently unavailable here in Hawai‘i. This represents a loss of future workforce from our state as well as the loss of millions of dollars in direct spending that could be contributing to Hawai‘i’s economy.

The proposed aviation program will provide a vehicle and resources to ensure the State of Hawai‘i the retention of local students - and students from away - who seek professional opportunities in aviation. It will increase educational opportunities and enhance workforce development in all areas of aviation and aeronautics. A trained workforce is essential for future economic development, not only in the important fields of aviation and aeronautics, but in all technology fields.

By approving this program, we can begin creating the programs that will prepare Hawai‘i residents for high-paying technical and professional jobs in the aviation industry. Thank you for the opportunity to submit testimony. We strongly urge you to support this critical program for our island and State communities.

Sincerely,

Chuck Erskine
President
Randolph G. Moore, Chair
and Board of Regents
University of Hawai‘i System
2444 Dole Street
Honolulu, Hawai‘i 96822

Re: Aviation Training Program at the University of Hawai‘i at Hilo

Aloha Chair Moore and Regents:

We strongly support the establishment of an Aviation Training Program at the University of Hawai‘i at Hilo.

The Hawai‘i State Legislature supported this program back in May 2012 when passing SCR156 SD1, urging an exploratory committee to consider the feasibility of necessary resources for establishing an international aviation training program at Hilo International Airport with an advanced aviation degree at University of Hawai‘i at Hilo.

Act 272 during the legislative session in 2013 appropriated $100,000 for the program coordinator and technical support staff member.

In the 2014 Legislative session, Act 122 appropriated $500,000 to plan, design and construct a temporary site for the aviation program. The capital improvement project was approved and monies were released by the Governor in November 2014.

It is the State's economic development goal to encourage an innovative based economy relying on workforce proficiencies in science, technology, engineering and mathematics and requires that students have broad opportunities to learn the advance skills necessary to succeed in a more complex society.

An aviation program at the University of Hawai‘i at Hilo will assist in the diversification of the State's economy and provide an opportunity to gain a reputation as a world class training program servicing the Pacific Rim and beyond.
Given the importance of aviation to Hawai‘i and the anticipated increase in aviation travel in the Pacific Rim in the next decade. The State and the University of Hawai‘i at Hilo have an opportunity to provide the necessary education and training to our students to prepare them for prestigious high paying careers as professional pilots throughout the world.

We believe and strongly support the Aviation Training Program as it will strengthen Hawai‘i's future and economic development. We thank you for your consideration as you review the proposal for the Bachelor of Science in Aeronautical Science program at the University of Hawai‘i at Hilo.

Hau‘oli ka mana‘o,

Gilbert Kahele
Hawai‘i State Senator, District 1
Hilo

Clarence K. Nishihara
Hawai‘i State Senator, District 17
Senate Transportation Committee Chair

Mark M. Nakashima
Hawai‘i State Representative, District 1
Hāmākua, North Hilo, South Hilo
April 14, 2015

University Of Hawaiʻi System
Council of Chief Academic Officers
2444 Dole Street, Honolulu, HI, 96822

Re: In support of the proposed ATP (Authorization to Plan)

Many graduating students who seek the required academic and practical flight training leave the Hawaiian Islands every year. This is due to the fact that Hawaiʻi does not have the proper training facilities nor area in place to provide these future aviators with their necessary training. Thus, they choose to leave for the Mainland to pursue their academic and practical training and end up staying there. There is no reason that we have to lose so many talented young people from our state as well as suffer the loss of millions of dollars in direct expenditures that could be contributing to Hawaiʻi’s economy.

We have, in Hilo, a perfect environment for a world-class international aviation training center, including features such as underutilized land at Hilo airport, low air traffic activity and excellent instrument training opportunities at the airport. Hawaiʻi Community College and the University of Hawaiʻi at Hilo are conveniently located near the airport, and Hilo offers an affordable and welcoming environment for students from the Asia-Pacific region who will be attracted to the aviation program.

Supporting this plan means that we are supporting more jobs as well as the future of our universities and island life. I support this because I support keeping our bright and talented minds here in Hawaiʻi where they can continue to innovate and revolutionize in their fields.

Mahalo,

Representative Joy A San Buenaventura
District 4; Puna

Representative Joy A San Buenaventura
Hawaii State Capitol
415 South Beretania Street, Room 305
Honolulu, HI 96813
(808)586-6530
April 17, 2015

University of Hawai‘i System
Board of Regents
2444 Dole Street
Honolulu, HI 96822

RE: Authorization to Plan, Proposed Bachelor of Science in Aeronautical Science – University of Hawai‘i at Hilo

Dear Honorable and Distinguished Regents,

Thank you for the opportunity to offer my support for the proposed Bachelor of Science in Aeronautical Science program at the University of Hawai‘i at Hilo (UHH).

We have a unique opportunity to enhance Science, Technology, Engineering and Mathematics education on Hawai‘i Island and more so, throughout the Pacific Region.

Currently, local students who wish to pursue their passion in aviation must study on the mainland, where tuition is outrageous and student debt is far too common.

Hilo provides ideal conditions for a world-class international aviation training center. With its moderate to low air traffic activity, open land in and around the airport, and with UHH located just five minutes south west of the airport, learning and studying aviation, in Hilo, would be seamless.

I believe this proposed program is an investment into our local economy, into our workforce, and most importantly, into the future of Hawai‘i’s keiki. Thank you for your consideration and for the opportunity to express my strong support.

Sincerely,

Dennis “Fresh” Onishi
Hawai‘i County Council Member
April 8, 2015

University of Hawai‘i System
Council of Chief Academic Officers
2444 Dole Street, Honolulu, HI, 96822

Dear Members of the Council of Chief Academic Officers:

I am pleased to offer my support for the proposed Bachelor of Science in Aeronautical Science program at the University of Hawai‘i at Hilo. In moving this program forward, the University of Hawai‘i would continue to grow a skilled workforce poised to meet the global economy’s changing needs.

There is an established demand among our young students for the advanced aeronautical training this program would provide, as hundreds are forced to relocate to institutions like the University of North Dakota to pursue their degree. This program would bring these gifted students home and further increase revenue for the state through a world-class program uniquely situated to attract students from Asia and beyond with advanced, specialized and highly technical instruction.

It is evident that aviation remains central to our state, and increased travel combined with an aging workforce will continue to move us to a pilot shortage. While demand for fixed and rotary wing pilots is currently driven by our tourist industry and will provide jobs for our graduates, the proposed center’s Remotely Piloted Aircrafts Systems program would empower our students to learn at the forefront of a burgeoning industry increasingly concentrated in the islands. Beyond being a center for testing and research of Unmanned Aerial Systems themselves, their use in Hawaii will support many of the important industries and priorities in the islands, including agriculture, invasive species and volcanology.

I urge you to support this program and further the University’s mission of preparing our students for skilled employment in lucrative and growing industries in Hawai‘i.

With regards,

[Signature]

Representative Cindy Evans
Majority Floor Leader
The Honorable Brian T. Taniguchi  
Chair, Senate Committee on Higher Education  
Conference Room 224  
State Capitol  
415 South Beretania Street  
Honolulu, HI 96813

RE: Congresswoman Tulsi Gabbard  
Testimony on SB 1221 Relating to Higher Education  
Before the Senate Committee on Higher Education

Dear Chairman Taniguchi, Vice Chairman Kahele and Senate Members of the Committee on Higher Education,

Thank you for the opportunity to present my testimony in support of Senate Bill 1221 before the Committee on Higher Education.

The proposed aviation training program in Hilo is a great opportunity to enhance Science, Technology, Engineering and Mathematics education in Hawaii. These areas of study are vital to prepare our children to be competitive in the age of global discovery and innovation enterprise that will define the 21st century. For students here in Hawaii and abroad, an aviation training program in Hilo can open up educational and career pathways never before available in this region.

I understand that the report submitted by the Governor’s Aviation Exploratory Committee has shown there will be a global pilot shortage in the coming years. The proposed programs at Hawai‘i Community College and the University of Hawai‘i at Hilo as well as the International Aviation Training Center at Hilo Airport will address this issue. And, I strongly believe will make a measurable, positive contribution to the State economy and its residents.

I certainly recognize the current fiscal environment, but believe this investment in jobs and education for our families is a step in securing the vitality of our State’s economy. I thank you for your consideration of this bill to fund the comprehensive planning of the aviation training program.

Sincerely,

Tulsi Gabbard

Tulsi Gabbard
Member of Congress  
2nd District, Hawaii
University of Hawai‘i at Manoa
Hawai‘i Space Grant Consortium
Hawai‘i Institute of Geophysics and Planetology
School of Ocean and Earth Science and Technology
1680 East-West Road POST 501, Honolulu, HI 96822
Voice: (808) 956-3138 Fax: (808) 956-6322 e-mail: hsgc@higp.hawaii.edu

We are in support of the establishment of an international flight training center and the aeronautical training programs to be established at the Hawaii Community College and the University of Hawaii at Hilo.

A flight training center and associated courses in Hilo would become part of the work force development pipeline in science, technology and engineering which already has a foundation in programs offered by the Civil Air Patrol, Starbase Hawaii and other aeronautical programs on the Big Island. The Hilo International Airport is currently underutilized, offers air traffic control, ramp space, nearby over land and over water training airspace, and flight training opportunities in varied weather conditions and provides a nearby proximity to the University of Hawaii at Hilo and the Hawaii Community College. This program and center would attract students statewide, nationally and internationally, while addressing the need for pilots and associated aeronautical technical jobs, while providing technical training and support for other science and technology employment opportunities including those related to the astronomy projects on Mauna Kea.

As educators involved in aerospace education for over 30 years, it is clearly evident that students need a relevant and engaging context to apply their learning science and math. Programs that we have participated in and coordinated including trips to the U.S. Space Camp which includes an aeronautics academy, Department of Education space conferences, Future Flight Hawaii, and local, national and international workshops and professional development, have demonstrated time and again that project based and applied learning provides the needed concrete application of abstract concepts. The training center and programs will become a catalyst toward inspiring the next generation of explorers while providing an economic opportunity for the State of Hawaii.

I recently met with Christopher Parayno, a Hilo High School graduate, who received an Aeronautical Engineering Degree from Embrey-Riddle Aeronautical University. He has been employed by the Boeing Company in Seattle in research and development, and just recently moved back to Hawaii to care for his parents and to raise his family in Hawaii. He is pursuing employment interests in Hawaii and is an example of our wanting our Hawaii talent to come home through programs such as the flight training center.

An Equal Opportunity / Affirmative Action Institution
Astronaut Ellison Onizuka said to the Konawaena High School graduating class in 1985:
"Your vision is not limited to what you can see, but what your mind can imagine. Many things that you can take for granted were considered unrealistic dreams by previous generations. If you accept these past accomplishments as commonplace then think of the new horizons you can explore. From your vantage point, your education and imagination will carry you to places which we won't believe possible. make your life count-- and the world will be a better place because you tried."

Ellison Onizuka became a flight test engineer in the United States Air Force, and later became Hawaii’s first astronaut. In the vision of Ellison Onizuka, we support this unique opportunity to enable our students to reach for the stars.

Art and Rene Kimura
Educational Specialists
Hawaii Space Grant Consortium, University of Hawaii at Manoa
To: University of Hawaii System  
Council of Chief Academic Officers  
2444 Dole Street  
Honolulu, Hawaii 96822

From: Brigadier General Arthur J. Logan  
Adjutant General  
Director of the Hawaii Emergency Management Agency

Subject: Aviation Training Program at the University of Hawaii at Hilo

April 16, 2015

I wanted to express my support of development of a state-of-art college level aviation training program at the University of Hawaii at Hilo.

The proposal for the Bachelor of Science in Aeronautical Science degree clearly details the program specifics and its benefits to the State of Hawaii. Nationwide, there are limited opportunities for flight training on the college level. Additionally, there would be an influx of international students because of the lack of flight training facilities in Pacific Rim counties.

Hilo International Airport is an ideal location for an international flight training center. The airport has low air traffic activity and provides for exceptional instrument training opportunities.

The aeronautical training program provides for a long overdue avenue for Hawaii’s youth in the Science, Technology, Engineering and Mathematics (STEM) areas. The flight program will help create high technology employment in aviation support areas like avionics and electronics, flight dispatch, air traffic control, flight operations management, maintenance management and other related fields. It will provide a workforce trained for high priority science and technology careers.

Overall, the aeronautical training program will provide a much needed aviation training program that will assist the diversification of Hawai’i’s economy. I ask your support to establish this Bachelor of Science in Aeronautical Science program.
17 ‘Apelila 2015

University of Hawai‘i System
Council of Chief Academic Officers
2444 Dole Street, Honolulu, HI, 96822

Aloha,

I am pleased to lend my support to move the proposed Aviation program for UH-Hilo forward. Pursuing and attaining a Bachelor of Science in Aeronautical Science degree means more to UH-Hilo and Hawaii than one would ever think.

The obvious benefits are enrollment at our students’ local university, the boost in STEM education and the enhancement of the state’s economy and community. One thing that some may not realize is the shortage of pilots, air traffic controllers, aviation mechanics and so forth that Hawaii may experience without this program. This program will create jobs for our working families and when students graduate we hope to see them in these professional jobs for which they were trained.

The mission of the Office of Hawaiian Affairs is to, “...better conditions of native Hawaiians and Hawaiians.” This program has the potential to allow our beneficiaries to not only learn and live their dreams in the aviation field, but it may very well be their start into their professional careers and give them the opportunity to become productive citizens of our state, our home. It will give them the opportunity to give back to their communities.

Again, I encourage you to assist in giving this program life. If you have any questions, please contact me at my office at (808) 594-1884 or by email at robertl@oha.org.

Aloha,

Robert K. Lindsey, Jr.
Chair, Board of Trustees
April 17, 2015

University of Hawaii System
Council of Chief Academic Officers
2444 Dole Street
Honolulu, HI 96822

Aloha Council members:

Thank you for this opportunity to express my support for the creation of the Bachelor of Science in Aeronautical Science (BSAS) degree program at the University of Hawaii at Hilo.

Such a program would be greatly beneficial to our state. There is currently nowhere in Hawaii that can provide the required level of academic and practical flight training in the aeronautical field, and local students who are interested in aviation and aeronautical science have no choice but to leave home to study flight operations on the mainland. The program would provide an affordable option for locals who are interested in aeronautics but are not able to afford to leave.

The BSAS program targets a vast Asian flight student market, with the largest projected growth in pilot demand being in the Asia-Pacific region. Couple this with Hilo being an ideal and welcoming destination for students from the Asia-Pacific region, and we are sure to see an increase in international students who bring even greater diversity to an already culturally diverse campus.

Tourist flight activities, which have been experiencing significant growth, generate a substantial income for our tourism industry. However, we rely heavily on pilots who have received their training and education on the mainland. Having an aeronautical degree program in Hawaii would allow for direct employment for qualified aircrew with tour operators, the airlines, and other aviation-related fields, and would mitigate the loss of bright young minds from our state.

The BSAS program is in line with Hawaii’s Science and Technology goals and will assist in a more seamless, application-based STEM education pipeline from K-12 to college. Furthermore, it addresses all six goals highlighted in the UH- Hilo Strategic Plan, particularly in preparing students for immediate employment in their chosen field, cultivating a diverse and multicultural student body, and strengthening UH- Hilo’s impact on the community. The BSAS degree program would be a great boon not only for Hawaii Island, but the entire state of Hawaii. I ask for your support in this important matter.

Mahalo for your consideration.

Aloha,

CLIFT TSUJI

Representative Clift Tsujil
District 2: Keaukaha; parts of Hilo, Puna, Waiakea
State Capitol 415 S. Beretania St. Honolulu, HI 96813
Phone: 586-8480 Toll-free from Hawaii island 974-4000 ext. 68480
Fax: 586-8484
Email: reptsuji@capitol.hawaii.gov
Aloha Mr. Cunningham,

Thank you again for meeting with me on March 19th to discuss potential opportunities in the B.S. in aeronautical science and pilot training when the program is approved at UH Hilo.

Including myself, about half a dozen fellow students at Waiakea High School are intrigued with becoming pilots. Two of us from that group are interested in a Navy/Air Force ROTC scholarship or the Coast Guard College Student Pre-Commissioning Initiative (Scholarship Program) in order to pay for college and provide immediate career opportunities.

When the aeronautical program is approved it would be helpful to have the ROTC and Coast Guard programs available at UH Hilo.

Sincerely,

Alejandro Mathews

11th Grade, Waiakea High School, Class of 2016
March 24, 2015

TO: Arthur Cunningham

Office of the Chancellor

University of Hawai‘i at Hilo

My name is Kimberly A.K. Parks and I am writing in reference to the pending UH Aviation Program.

Since the age of 7, my son always had been intrigued with airplanes and loved to take trips and be in the airport. As he grew he continued to speak of his interest of being a pilot or working in the airport. His fascination and interest never stopped.

My son, Sean A. K. Parks graduated from Waiakea High School in May 2014. Prior to his graduation from high school he had to complete a senior project about his career choice and he was required to work and volunteer 40 hours outside in the field of the job to gain experience. Sean was fortunate to have a teacher who obtained his internship at the Hilo International Airport. Sean fulfilled his time required and he learned about Airport management and operations of the airport grounds and air traffic control tower and maintenance.

Sean continued taking his normal classes in high school and also attended the University of Hilo, Hawai‘i Campus, through a program called Running Start and completed English 100 his Junior year and then History 151 and History 152 his senior year.

Sean applied during High School to EMBRY – Riddle Aeronautical University- Prescott, Arizona. They accepted him to start school in fall of 2014.

Prior to the fall semester, I recall a newspaper article which talked about our Senator: Gil Kahele and the need for pilots and a need for a school in Hawaii. I located the Senator’s email and sent a short message about my son and if this was really going to happen.

I received a quick response from someone who was actually working on the program curriculum and he contacted me to meet with my son and myself.

When we met with him it was positive. My son actually wanted to stay in Hawaii instead of moving away for school. It would better for him to stay in Hawaii to get an education in his profession locally.

During our meeting we discussed the program highlights and course’s and pending timeframe for this all to happen hopefully. It was this person who said that he feels if Sean decides to stay that he would be the first student for this course. My son was very happy to hear that this could actually happen.
Prior to school starting in fall 2014, my son decided not to attend Embry-Riddle Aeronautical University- Prescott, he decided to stay at the University of Hilo, Hawai‘i Campus and enrolled into the degree of “Physics”. With the guidance of his counselors he has geared his studies toward the pending “Aviation Program” and is taking the classes that are recommended for the pre requisites.

Sean attended fall 2014, and had credits already obtained from his high school college classes taken and now he is attending spring 2015 and is a sophomore. Sean is doing great in school and takes it seriously and strives for good grades on his class work and exams. For a young man he is focused and determined to meet his goals of being in the Aviation Program at the University of Hawai‘i Campus.

My son’s shown to be a proven candidate for this program and my son’s focus of his career choice since he was 7 years old to be in the aviation field is determination and commitment. My son could show other prospect high school students if he is accepted and given a chance, then they also have a chance to attend and be a part of this great pending opportunity to have future generations graduate from the Aviation program of the University of Hawaii, Hawai‘i Campus.

I would greatly appreciate your consideration of my written statement regarding the need for the Aviation Program at the University of Hilo Hawai‘i.

Mahalo nui loa,

Kimberly A.K.Parks
To Whom It May Concern:

When I graduated from Waiakea High School, I had a goal which was to become a certified airline pilot. As a senior, I applied to Embry Riddle Aeronautical University at Prescott and was accepted as a student with an Aviation major. Being that Embry Riddle is the number one aeronautical school in America, it is very costly, especially paying an out-of-state student tuition. The first thing we checked was to see if Embry Riddle qualified as a WUE (Western Undergraduate Exchange) university, as that would allow students from Hawaii to pay in-state tuition. Unfortunately it did not qualify, so my family decided that I would enroll at the University of Hilo, Hawaii Campus in Fall 2014.

Fortunately, while I was in High school I found out about a pending Aviation program at the University of Hawaii at Hilo. My mother immediately contacted via email, the senator who had a newspaper article about putting an aviation program together. We were contacted quickly and the person Ray Bedard, explained the curriculum for the proposed program and gave me advice on what I should do to achieve my goal faster, should this program come to fruition. He was very optimistic and excited to see that there was an actual student for the program in Hilo and who would support what he was working very hard to do.

He introduced us to Arthur, who is just as optimistic and supportive as he, and we were able to talk more about what they were planning to do. I knew that this program was going to change the future of our community. After discussion with my parents, I enrolled at UH Hilo with a degree in physics. I am currently taking classes that are highlighted on the curriculum. I have high hopes that this program will have a big effect for forthcoming students who want to study in the Aviation program and will provide jobs in the travel industry which will greatly impact the community of Hilo, and the state of Hawaii.

Respectfully Submitted,

Sean Parks