

AUTHORIZATION TO PLAN (ATP) A NEW ACADEMIC PROGRAM

1. Prior to completion of the ATP, consultation has been made with the Vice Chancellor for Academic Affairs (VCAA) regarding the interest in proposing a new Aeronautical Science program.
2. Campus/College/Department: University of Hawai'i at Hilo/College of Agriculture, Forestry and Natural Resource Management

3. Chair of Planning Committee:

- Raynald Bédard, Specialist Faculty, UH Hilo

Planning Committee Members:

- Kai Kahele, Hawaiian Airlines pilot
- Bo Masuyama, Hawaiian Airlines pilot
- Arthur Cunningham, UH Hilo
- Steve Santiago, Hilo Airport Manager

4. Degree/Certificate Proposed:

- Baccalaureate of Science in Aeronautical Science with four separate tracks:
 1. Fixed Wing Professional Pilot
 2. Fixed Wing Flight Education Pilot
 3. Helicopter Flight Operations
 4. Remotely Piloted Aircraft Systems

5. Describe the Need for Program:

This program is designed to be fast-paced without summer interruptions so the students can acquire all flight certificates, graduate with a Baccalaureate of Science in Aeronautical Science degree and find high paying employment within a minimum of 2 1/2 years of starting their studies.

a. Program Description

1) Program Learning Outcomes

- The students will acquire strong:
 1. Analytical thinking skills
 2. Technical knowledge
 3. Flying skills in one of the following areas:
 - a. fixed wing flight systems
 - b. rotary flight systems
 - c. remotely piloted aircraft systems

- Upon successful completion, the students will be able to:
 1. Take appropriate actions based on the knowledge gained
 2. Correctly use their skills and techniques in technologically advanced systems
 3. Function and contribute in a team environment
 4. Correctly apply their preparation in decision-making and judgment skills
 5. Continue ground and flight training experiences
 6. Communicate in both technical writing and verbal skills
 7. Understand professional and ethical responsibility
 8. Analyze and interpret data
 9. Understand the environment and maintain situational awareness
 10. Satisfy the FAA requirements for practical knowledge and flight performance

2) Program Justification

- In order to ensure the provision of adequate aviation education designed to meet the science and technology-oriented economic development opportunities and needs of Neighbor Island communities, we propose to offer an creditable undergraduate degree at UH Hilo (UHH) in Aeronautical Science.
- Initial funding for such a program was approved in SB1221 in support of SCR 156 which called for the comprehensive planning of an undergraduate aviation program at UH Hilo and Hawai'i Community College.
- This new program will create an opportunity to repatriate the 200 Hawai'i students (based on phone calls to registrars of Embry-Riddle Aeronautical University and University of North Dakota) currently studying flight operations on the mainland. The primary reason for this is the required level of academic and practical flight training in the aeronautical field is not available in Hawai'i.
- The local tourism industry generates tremendous income from flight activities and relies heavily on pilots that have received their training and education on the mainland. This program will provide Hawai'i with qualified aircrew for direct employment with tour operators, the airlines and other aviation related fields.
- The local flight tourism industry is experiencing significant growth. In 2013, Mokulele Airlines purchased 5 new Cessna Caravan for inter-island passenger flights. The General Manager and Director of Operations for the company created his own Second-in-Command training program in order to attract pilots and train them to satisfy the rapid growth of Mokulele Airlines.
- Graduates of this program will have the opportunity to apply to stay in Hilo as ground and flight instructors.
- It will also provide faculty research topics in human factors, English for aviation, remote sensing with remotely piloted aircrafts, flight safety and crew resource management.
- Because of its already established relationship with Asian countries, an aviation program at UH Hilo is also expected to attract numerous students from Asia.

- This program will attract numerous Veterans who have educational benefits and want to learn to fly airplanes and helicopters.
- 3) Discuss how the program will impact campus, island and/or the state's economic development.
- In order for the UH System to be better positioned to meet the State's science and technology goals, UHH requires essential support to excel in applied and basic STEM (Science, Technology, Engineering and Mathematics) research fields that provide the hands-on experiences essential for our graduates to be competitive in the global discovery and innovation enterprise.
 - The proposed program will serve as a complement to the existing STEM related research programs, and offer solid faculty-guided research experiences that can benefit student groups and community.
 - Repatriating the 200 students that study aeronautical science on the mainland who spend on average \$200,000 will generate \$40 Million in the local economy.
 - The island of Hawai'i and in particular Hilo airport provides the perfect environment for a world class international aviation training center for these reasons:
 - a. Unique meteorological conditions
 - b. Underutilized land at Hilo international airport
 - c. Low air traffic activity
 - d. Excellent air traffic control and radar facilities
 - e. Instrument landing system
 - f. Proximity of the campus to the airport
 - g. Available facilities on airport property
 - h. Proximity to Asia
 - Hilo offers relatively inexpensive housing and a local culture that is compatible with many Asia-Pacific international students who will be attracted to the program.
 - The campus has tremendous expertise in geography and remote sensing that will be greatly enhanced by the addition of Remotely Piloted Aircraft Systems (RPAS). The new program will provide multiple opportunities for research in precision agriculture, forest management, invasive species and volcanology.
- 4) Program Rationale Based on Workforce Needs
- The aviation industry will face a global pilot shortage in the near future¹. An August 2013 report from Boeing predicts the need for nearly 500,000 airline pilots by 2032. Over the next 20 years, passenger travel demand will grow annually at 5.0% and cargo will grow at 5.8% with emerging markets in the Asia-Pacific leading the way. In order to meet the demand due to retirements and attrition, 19,000 pilots need to be trained annually. Currently, there are 12,000 pilots being trained at all US flight schools and aviation university programs. Boeing recognizes the current

¹ (Bédard, 2014)

demand as a "gap in our industry" and expects to see changes that may help "attract and retain young people interested in careers in aviation²."

- The entry of Remotely Piloted Aircraft Systems (RPAS), also called Unmanned Aircraft Systems (UAS) into the civilian aviation flight structure by 2015 will add to the increased demand for pilots further increasing the projected pilot shortage.
- The FAA decision to establish a Remotely Piloted Aircraft Systems test site in Hawai'i will attract numerous contractors and scientist that will require operators that are skilled in data analysis.
- The FAA has increased the flying hour requirements and level of training for pilots flying with all major US airlines. These increased standards will no doubt increase the safety of US passenger operations but make it more difficult for a pilot to attain their Airline Transport Certificate (ATP) requiring more flight hours and advanced training.
- The baseline standard at major airlines including Hawaiian Airlines is for applicants that have:
 - A baccalaureate (4 year) degree
 - An airline transport certificate (ATP)
 - Received their primary training either from an accredited institution or the military (a declining source)
 - A significant number of flight hours
- Currently there is no program in the State of Hawai'i that can prepare a student for this high level of qualification.
- Hawai'i has the best strategic geographical location to Asia and is best poised to benefit from the Asia-Pacific market with a world class aviation program.
- According to the Hawai'i Department of Labor and Industrial Relations, Research and Statistics Office³, the Scheduled Freight Air Transportation requirements for the island of Hawai'i will increase by 139% in the next 10 years due to the construction of the Thirty Meter Telescope.
- According to the U.S. Bureau of Labor Statistics (BLS)^{4,5}, airline pilots have a salary range of \$45,000 to \$270,000 with an estimated annual wage of \$115,300 in 2010.
- Many of the graduates of this program will be hired by the contracted flight provider as flight instructors as more experienced instructor pilots are hired by the airlines.
- Helicopter pilots in the United States have a salary range of \$50,000 to 125,000 with a median salary of \$71,000.

² (Boeing Corporation, 2013)

³ (University of Hawaii, 2013)

⁴(Bureau of Labor Statistics, 2014)

⁵ (Pro Pilot, 2013)

- The FAA Aerospace Forecast Fiscal Years 2012-2032 report has the following data for the United States:

	2011	2021	Increase
Number of rotorcraft	10,410	13,790	32.4%
Demand for rotorcraft pilots	15,220	19,450	27.7%
Total rotorcraft hours flown	3.35 Millions	4.25 Millions	26.8%

- The FAA also states: “We see growth in business aviation demand over the long term driven by a growing U.S. and world economy especially in the turbo jet and rotorcraft markets.”
- The 2012 Turbine Powered Civil Helicopter Outlook (By Honeywell Aerospace) states:
“Global deliveries of new civilian-use helicopters will increase to 4,700 - 5,200 over the five-year period 2012 – 2016. Expectation for new aircraft ordering in 2012 is up over 30 percent compared to 2011 levels. Plans for increased helicopter fleet utilization in 2012 [alone] were reported by operators in all but one region.”
- Planned increases in each region were:

Region	Operators planning increases (%)	Operators planning decreases (%)
North America	14	4
Europe	18	12
Middle East / Africa	26	4
Asia	19	9
Latin America	32	2

- Vertical Reference Classified Webpage: In 2008, a typical Emergency Medical Services (EMS) pilot position was advertised at 3,500-4,000 flight hours as pilot. In 2013, these same positions are being advertised at 2,500-3,000 flight hours. This reduction in minimum hiring requirements is driven by a reduced number of available pilots.
- From an article in the China Daily
“A senior executive vice-president of Eurocopter for the Asia-Pacific region says it had been selling about 10 helicopters annually in China until last year, when it sold 30 and that it is anticipating this number to increase from 50 to 80 units a year.

The Chinese government is gradually opening more low-altitude airspace, below 1,000 meters, for private aircraft used in general aviation. This move is predicted to spur demand for general aviation aircraft, including helicopters and light aircraft.

According to the estimates in the 2011-15 China Rotating Helicopter Market Analysis and Investment Outlook Report, from Beijing Institute Information Consulting Co, there are more than 50,000 potential users of public service and private helicopters in China. The number of helicopters in operation could exceed 1,000 once airspace regulations are relaxed.”

- 5) Demonstrate how the proposed program aligns with system and campus mission and strategic plan and outcomes.
 - See Appendix A

- b. Can identified need be met by existing UH program(s)?
 1. List similar degrees or certificates offered in the UH System
 - Honolulu Community College offers a certificate in Commercial Aviation.
 - This program is not accepting new students and is scheduled for closure.

 2. Describe the impact of the proposed program on current courses or programs at the campus and within the system.
 - The undergraduate degree in Aeronautical Science that UH Hilo is planning is unique and distinct from the existing program at Honolulu Community College as the proposed program will allow training opportunities in four year fixed-wing, rotary wing and remotely piloted aircraft systems degree programs.
 - Since there is no expertise in the core aeronautical science subjects the new faculty that will be hired will develop the courses the semester before they will deliver the content for the first time.
 - Particular attention was paid to maximize the use of existing courses and resources in building the four tracks.

 3. If a similar program exists, consult with other campuses, identifying who has been consulted, what campus and date of consultation. Consultation will include:
 - a) The VCAA of the other UH campuses with relevant programs by the VCAA of the campus proposing the degree/certificate
 - Dr. Morton, Chancellor of Hawai'i Community Colleges
 - Dr. Quigley, Vice-Chancellor for Academic Affairs of Hawai'i Community Colleges.

 - b) Colleagues in related disciplines from other campuses have been consulted.
 - Mr. Peter Forman, Honolulu Community College.

6. Planning the New Program

a. Planning Period

- 1) The planning period will be from May 2014 through December 2014.
- 2) Activities to be undertaken during the planning phase:
 - An advisory committee of faculties selected from CAFNRM, CAS, CBE and interested outside professionals from the local aviation community will develop the degree requirements including core and elective courses. Once the degree program is developed, it will be submitted to the UHH Curriculum Review Process for approval.
- 3) Anticipated submission date of program proposal
 - December 2014
- 4) Workload/budget implications during planning period
 - The State legislature provided \$100,000 (SB1221-2013) for salaries until June 30, 2014.
 - A program Coordinator has been hired in October 2013.
- 5) How program will be economically sustainable
 - The committee will set up a budget analysis and manage the existing fund.
 - It also requested additional funding from the State Legislature (SB3092) to continue funding the committee and its efforts for fiscal year 2014-2015.
- 6) Impact proposed program may have on accreditation
 - The UHH Aeronautical program will seek accreditation from the *Aviation Accreditation Board International*.
- 7) How program will fit within campus and/or system organizational structure
 - Assuming that all approvals are received within schedule, the program will be implemented as following:

Spring 2014	<ul style="list-style-type: none">• Submission of ATP• Preparation of full proposal based on ATP approval• Preparation of Request for Proposal (RFP)
Fall 2014	<ul style="list-style-type: none">• Recruitment of students• Flight provider selection
Spring 2015	<ul style="list-style-type: none">• Working with selected flight provider to establish flight line• First faculty hired and courses developed
Fall 2015	<ul style="list-style-type: none">• Inaugural class enrolled

- Eight hired faculty members will develop all the new Aeronautical Science courses as the expertise does not currently exist on campus.

2015	Spring	1. Ground Schools and Advising (FW)
	Summer	2. Meteorology 3. Ground Schools and Advising (RW)
	Fall	
2016	Spring	4. Ground Schools (FW)
	Summer	5. Ground Schools (RW)
	Fall	6. Remotely Piloted Aircraft Systems
2017	Spring	7. Systems (FW)
	Summer	8. Airline Operations (FW)

- All the flight training courses will be provided by the contractor who will collect some revenues from these courses.

b. Description of resources required

- In order to provide the above degrees, the following resources should be allocated to the UHH undergraduate Aeronautical Science program:

1) Faculty:

- It is estimated that at full implementation the program will require 51 new aviation related courses that will be taught by eight new faculty members. Additionally, the contracted flight provider will provide the flight instructors required to provide flight instruction.
- Aeronautical Science faculty is budgeted at \$75,000 on average per year per person plus fringe benefits of 45%. Pay increases are planned to be 4% per year.
- Additional support of lecturers for prerequisite and GE classes is required. Lecturers are budgeted at \$5,000 per course.

2) Library resources:

- The program draws in partly on existing courses, but new books, databases and case files will need to be purchased by the library. Additional support on expanding collections at the library would require approximately \$10,000/year and this number will increase to \$15,000/year when the program is in full implementation.

3) Physical resources:

- Equipment and Supplies: The costs are a function of the chosen flight services provider and are estimated at \$50,000.

- Office space for eight new faculty members and one administrative assistant will need to be provided on campus.
 - Additional classroom space will need to be provided for up to 120 students once the program has reached steady-state in FY17/18.
 - A flight simulation lab will be required on campus with 25 computer stations at an approximate cost of \$50,000 for FY2014/15.
 - Aircraft and hangar space and at the flight line will be provided in consultation with the flight provider.
- 4) Other resources required:
- Starting in January 2015 the Aeronautical Science program will require a full time administrative staff responsible for:
 - liaison with the FAA,
 - consultation with airport environment managers,
 - supporting public relations, and
 - student support.

c. Five-Year Business Plan:

YEAR	FY14/15	FY15/16	FY16/17	FY17/18	FY18/19
PROGRAM COSTS					
Faculty w/o fringe	37,500	284,750	563,818	727,407	746,229
Other personnel costs w/o fringe	29,000	59,740	61,532	63,378	65,280
Library	10,000	10,000	10,000	15,000	15,000
Equipment/Supplies	50,000	50,000	50,000	50,000	50,000
Other					
TOTAL Expenses	126,500	404,490	685,350	855,785	876,509

REVENUES					
Projected Enrollment	-	43	79	111	111
No. of Courses	-	24	52	84	84
No. of Credits	-	66	139	225	225
SSH	-	1,626	3,268	3,358	3,358
Tuition Rate/FT - resident	3,324	3,564	3,828	3,828	3,828
Tuition Rate/FT - non-resident	9,324	9,684	10,080	10,080	10,080
Total Revenue from Tuition	-	661,716	1,293,840	1,799,892	1,799,892
Other Sources of Income	-	117,984	198,502	222,695	222,695
TOTAL Revenues	-	779,700	1,492,342	2,022,587	2,022,587

Budget Assumptions:

1. Inaugural Class: Fall 2015 (FY2015/16). First graduating class May 2018.
2. Faculty salaries assumed to be \$75,000/year.
3. Faculty hiring:

2015	Spring	1. Ground Schools and Advising (FW)
	Summer	2. Meteorology 3. Ground Schools and Advising (RW)

	Fall	
2016	Spring	4. Ground Schools (FW)
	Summer	5. Ground Schools (RW)
	Fall	6. Remotely Piloted Aircraft Systems
2017	Spring	7. Systems (FW)
	Summer	8. Airline Operations (FW)

4. An annual salary increase rate of 3% has been included.
5. Prerequisite GE costs are calculated by filling in with lecturers, and lecturer rate is budgeted is \$5,000 per course.
6. 75% of students are paying resident tuition and 25% are paying non-resident rates.

7. Impact on current courses or programs:

- Aviation related education and training programs are a high priority for the State’s Innovation Initiative. Additional curriculum offerings will allow the University of Hawai’i System to excel in applied and basic science, technology, engineering, and mathematics (STEM) research fields that provide the hands-on experiences essential for its graduates to be competitive in the global discovery and innovation enterprise.
 - UH Hilo already has all the general education courses in place for the Aeronautical Science degree program (See Appendix B)
 - The new program will give Hawai’i students an opportunity to acquire their pilot certificates and a degree in aviation at UHH rather than go to a mainland university.
 - Ripple effect has been taken into consideration on the current courses and programs.
 - Affected departments were consulted regarding availability of instructional resources for existing and planned courses for this proposed Aeronautical Science Program.
 - A draft curriculum was sent out to affected departments. A business plan for the proposed program has taken collective input regarding additional instructional resources needed into consideration.
8. If the curriculum includes courses that are offered at other UH campuses, describe how articulation of these courses will be assured prior to the program proposal submission.
 - Not applicable
 9. If this program is multidisciplinary, provide evidence of commitment for support from the colleges, departments, programs, and/or individuals expected to participate.

- Approval of the program from the UH Hilo College of Agriculture, Forestry and Natural Resources management Faculty Senate
- Survey of all affected Department Chairs

The ATP has completed the campus approval process prior to review by Council of Chief Academic Officers

Works Cited

Bédard, R. (2014). *Pilot Supply and Demand*. University of Hawai'i at Hilo, Hilo, HI.

Boeing Corporation. (2013). *Pilot and Technician Outlook*.

Bureau of Labor Statistics. (2014). *Occupational Outlook Handbook, 2014-2015 Edition, Airline and Commercial Pilots*. United States Department of Labor. United States Department of Labor.

Hawaii Workforce Infonet. (2013). *Hawaii County Industry projections, 2010-2020*. Honolulu.

Pro Pilot. (2013). *Pro Pilot Compensation, Salary Study 2013*. Pro Pilot Magazine.

University of Hawaii. (2013). *Industries, County of Hawaii*. Excel Spreadsheet, University of Hawaii, Honolulu.

Reviewed by:

Campus Chief Academic Officer:

_____Recommend

Comments:

Signature

Print Name

Date

Chancellor:

_____Approved _____Disapproved

Comments:

Signature

Print Name

Date

Council of Chief Academic Officers (Systemwide Consultation):

Comments:

Signature

Print Name

Date

(A copy of the signed document is provided to the Office of the Executive Vice President of Academic Affairs/Provost)

APPENDIX A

UH System Strategic Plan

The Baccalaureate of Science in Aeronautical Science at the University of Hawai'i at Hilo aligns with these specific University of Hawai'i System Strategic plan:

Goal 1: Educational Effectiveness and Student Success

Embrace a culture of excellence and performance as the hallmarks of effective learning and student success.

Objective 1:

To achieve a shared institutional culture that makes student learning and success the responsibility of all.

Action Strategies

- Design and implement an effective enrollment management plan to improve the entry, retention, and success of diverse student populations, especially Native Hawaiians and underrepresented ethnic groups.

Ensure that students experience a transforming education by:

- Providing access to a fully articulated, integrated, and comprehensive liberal arts foundation.

The curriculum (Appendix B) includes all the General Education & Integrative Requirements specified in the 2013-2014 University of Hawai'i at Hilo's General Catalog.

- Engaging students in active learning.
- Using technology to support learning.

The curriculum includes state-of-the-art simulation scenarios in the dedicated simulation courses that supplement the hands-on flight training, thus providing active learning opportunities using technology.

- Enhance the involvement of undergraduate students in the creation and transfer of knowledge through:
 - Research-intensive courses.
 - Student research opportunities and related employment.

The curriculum includes courses that will foster research and publications especially in the Remotely Piloted Aircraft Systems track.

Objective 2:

To achieve a shared institutional culture that treasures diversity and inclusion, honors collegiality, and continuously strives for exceptional performance.

Action Strategies

- Continue to give admission preference to qualified residents, increase and support the participation of underrepresented populations throughout the system, and actively recruit non-resident students.

The program was designed with the assumption that on average, 75% of the students will be qualified residents and 25% of the students would be non-residents. The intention of the upcoming marketing effort is to attract students from Asia.

Goal 2: A Learning, Research, and Service Network

Engage diverse elements of the UH system in intellectual capital formation that enables Hawaii to flourish.

Objective 1:

To excel in basic and applied research for the discovery and dissemination of new knowledge.

Action Strategies

- Assume leadership in knowledge creation by building on existing research strengths, addressing critical gaps, and capitalizing on Hawaii's natural advantages.

The curriculum includes courses specific to Hawai'i's weather and geographic location.

- Promote research through collaboration across disciplines, among campuses, and with international colleagues.

The curriculum is designed to take full advantage of the existing courses that span the departments at UH Hilo.

Objective 2:

To support Hawaii's economy, workforce development, and improved access and flow of education in Hawaii from preschool through a lifetime of learning by building partnerships within the University and with other public and private educational, governmental, and business institutions.

Action Strategies

- Maintain affordable access for Hawaii's residents to the University of Hawaii system, taking into account tuition at competitive institutions; seek a consensus with public policy leaders that results in state-supported financial assistance for needy students; provide incentives for enrollment in programs that address high demand community needs.

This program is an affordable option for Hawaii's residents (when compared to options on the mainland), encouraging them to seek their educational experience here rather than leaving the state.

Objective 3:

To provide access for students, faculty, and staff to a first-class information technology infrastructure, support, and services that sustain and enhance University instruction, research, and administrative services within the University, throughout Hawaii, and beyond.

Action Strategies

- Engage, develop, and support the University's entire faculty and staff to create a pervasive, technology-rich instructional environment that serves on-campus and off-campus learners through intercampus sharing of experiences, application showcases, and collaborative development activities that demonstrate how technology can improve student-learning outcomes across the curriculum.

The curriculum includes state-of-the-art simulation scenarios in the dedicated simulation courses that supplement the hands-on flight training, thus providing active learning opportunities using technology. These simulation scenarios can also be electronically distributed and administered online to support individualized student learning outcomes.

GOAL 3: A Model Local, Regional, and Global University

Transform the international profile of the University of Hawaii system as a distinguished resource in Hawaiian and Asian-Pacific affairs, positioning it as one of the world's foremost multicultural centers for global and indigenous studies.

Objective 1:

To establish the University of Hawaii and the state of Hawaii as the research, service, and training hub of Oceania, with bridges to the Asia-Pacific region, the Americas, and the rest of the world.

Action Strategies

- Identify and capitalize on strategic international markets for profit-generating programs (short-term training, distance learning, and technical assistance) based on existing partnerships and U H program strengths and capacity.
- Play an active leadership and participatory role in Oceania/Asia/Pacific-focused organizations.

The program is designed to be fast-paced without summer interruptions so the students can acquire all his flight certificates, graduate with a Baccalaureate of Science in Aeronautical Science degree and find high paying employment within two and a half years of stepping on campus for the first time.

APPENDIX B

Aeronautical Science Curriculum

				TRACK			
				Fixed Wing Professional Pilot	Fixed Wing Flight Education Pilot	Remotely Piloted Aircrafts Systems	Helicopter Flight Operations
First Semester							
GQ	MATH	104F	Functions	3	3	3	3
	WX	201	Meteorology	3	3	3	3
	AS	121	Private Pilot Operations Part 1	3	3	3	
	SIM	121	Private Pilot Simulation	1	1	1	
	FA	121	Private Pilot Flight Part 1	4	4	4	
	AS	102	Water Survival	1	1		1
	HG	121	Private Pilot Helicopter Ground Part 1				3
	HSIM	121	Private Pilot Helicopter Simulation				1
	HF	121	Private Pilot Helicopter Flight Part 1				4
			<i>TOTAL</i>	<i>15</i>	<i>15</i>	<i>14</i>	<i>15</i>
Second Semester							
GQ	MATH	104G	Trig & Geometry	3	3	3	3
	PHYS	106	College Physics I	3	3	3	3
	PHYS	170L	General Physics I Lab	1	1	1	1
	AS	122	Private Pilot Operations Part 2	3	3	3	
	FA	122	Private Pilot Flight Part 2	4	4	4	
	HG	122	Private Pilot Helicopter Ground Part 2				3
	HF	122	Private Pilot Helicopter Flight Part 2				3
			<i>TOTAL</i>	<i>14</i>	<i>14</i>	<i>14</i>	<i>13</i>
Third Semester							
	PHYS	107	College Physics II	4	4	4	4
	PHYS	171L	College Physics II Lab	1	1	1	1
	AS	221	Instrument Pilot Operations	4	4	4	
	SIM	221	Instrument Pilot Simulation	1	1	1	
	FA	221	Instrument Pilot Flight	4	4	4	
	HG	221	Instrument Pilot Helicopter Ground				4
	HSIM	221	Instrument Pilot Helicopter Simulation				1
	HF	221	Instrument Pilot Helicopter Flight				4
			<i>TOTAL</i>	<i>14</i>	<i>14</i>	<i>14</i>	<i>14</i>

Fourth Semester

GS	CHEM	114	Intro Chemistry	3	3	3	3
GS	CHEM	114L	Intro Chemistry Lab	1	1	1	1
GF	ENG	100	Expository Writing	3	3	3	3
	WX	301	Aviation Weather	3	3	3	3
	AS	321	Commercial Pilot Operations Part 1	2	2		
	FA	321	Commercial Pilot Flight Part 1	4	4		
GW	GEOG	102	World Regional Geography			3	
	HG	321	Commercial Pilot Helicopter Ground Part 1				2
	HF	321	Commercial Pilot Helicopter Flight Part 1				3
			<i>TOTAL</i>	<i>16</i>	<i>16</i>	<i>13</i>	<i>15</i>

Fifth Semester

GH			Humanities	3	3	3	3
WI	AG	200	Agro-Environmental Science Com	3	3	3	3
GS	CS	150	Intro To Computer Science I	3	3	3	3
	AS	322	Commercial Pilot Operations Part 2	2	2		
	FA	322	Commercial Pilot Flight Part 2	4	4		
	AS	132	Intro to RPAS			3	
	GEOG	201	Interpretation of Geographic Data			3	
	HG	322	Commercial Pilot Helicopter Ground Part 2				2
	HF	322	Commercial Pilot Helicopter Flight Part 1				3
			<i>TOTAL</i>	<i>15</i>	<i>15</i>	<i>15</i>	<i>14</i>

Sixth Semester

14GH			Humanities	3	3	3	3
GS	ECON	130	Intro To Microeconomics, Macroeconomics	3	3	3	3
GW/GS	GEOG	102	World Regional Geography	3	3		3
WI	AS	380	Aviation Career Planning	1	1	1	1
	AS	309	Aerodynamics and Performance	3	3	3	3
	FA	323	Commercial Multi Add-on	2	2		
	AS	232	RPAS Robotics			3	
			Elective 300-400			3	
	HO	301	Helicopter Tour Operations				1
	HO	302	Helicopter Preventive Maintenance				1
			<i>TOTAL</i>	<i>15</i>	<i>15</i>	<i>16</i>	<i>15</i>

Seventh Semester

GW			World Cultures	3	3	3	3
GCC			Global and Community Citizenship	3	3	3	3
	AS	356	Aircraft Systems and Components	3	3	3	3
	AS	311	Aircraft Engines	2	2	2	2
	AS	350	Domestic and International Navigation	3	3		
	AS	421	Flight Instructor		3		
	FA	421	Flight Instructor Rating		2		
	AS	332	RPAS Mission Planning and Simulation			3	
	GEOG	470	Remote Sensing/ Air Photo			3	
	HG	421	Helicopter Flight Instructor Ground				3
	HF	421	Helicopter Flight Instructor Flight				3
			<i>TOTAL</i>	<i>14</i>	<i>19</i>	<i>17</i>	<i>17</i>

Eight Semester

GL		Language Arts	3	3	3	3
HPP		Cultural Resource Management	3	3	3	3
	AS	357 Flight Physiology	2	2		2
WI	AS	387 Crew Resource Management	3	3		
	AS	408 Flight Safety	3	3	3	3
	AS	420 Airline Operations and Flight Crew Techniques	3			
	AS	422 Flight Instructor- Instruments		2		
	FA	422 Flight Instructor- Instruments Rating		2		
GEOG		480 Geog Info Sys & Visualization			3	
	FA	432 RPAS Flight			5	
	HG	422 Helicopter Flight Instructor Ground - Instruments				3
	HF	422 Helicopter Flight Instructor Flight - Instruments				3
		<i>TOTAL</i>	<i>17</i>	<i>18</i>	<i>17</i>	<i>17</i>
		TOTAL	120	126	120	120

General Education & Integrative Requirements

GF	English Composition	3
GL	Language Arts	3
GQ	Quantitative Reasoning	6
GW	World Cultures	6
GH	Humanities Electives	6
GS	Social Sciences Electives	6
GN	Natural Sciences Electives	7
WI	Writing Intensive Requirement	3 Courses
HPP	Hawai'i Pan Pacific Requirement	3
GCC	Global Community Citizenship Requirement	3