

Faculty

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Degrees and Programs

Aviation, B.S.	53
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PUC's unique training environment and innovative approach to flight training is designed to maximize traditional aircraft handling skills with a holistic focus on personal discipline, public service and corporate leadership. FAA Airline Transport Pilot (ATP) Certification is now expected for most long-term career pilot positions.

The four-year Bachelor in Aviation Program offers a comprehensive package for ab-initio career pilots. Graduates typically meet the requirements for the Airline Transport Pilot Certificate after graduation. (See below.) The Associate and Minor programs offer similar benefits in a shorter program to supplement prior/future flight certification or other fields of expertise.

Aviation students and their families aspiring toward Airline Transport Pilot Certification are encouraged to dialog with the Flight Center with reference to FAA Advisory Circular 61-139 for the latest information regarding individual progression.

Admission to the Aviation Program:

After acceptance to PUC, prospective aviation majors and minors must apply to the Flight Center. Additional academic requirements, psychological testing and character references are required as well as an FAA Medical and TSA citizenship / background checks.

Additional Fees:

Aircraft, and simulator (AATD) fees as well as exam fees are

currently not fully covered by tuition. Pilots who enroll for flight classes (AVIA 273, x76, x77, x78, AVIA 472, 473) will receive ≈\$500 per credit hour toward their flying account. Excellence requires extensive study as well as consistent life balance skills. Excellent aviation majors can expect to spend about \$4,500 (Bachelor) or \$6,500 (Associates) per year above the costs when compared to another degree. Excellent aviation minors may earn specific certificates with out of pocket costs as follows:

- Private Pilot Airplane \$3,000
- Instrument Rating \$2,000
- Commercial Pilot \$12,500

Aviation Colloquium AVIA 396:

Every flight student must complete AVIA 396 every quarter in residence. Transfer Students: at its discretion, the Aviation Department may prorate the total required credits maintaining at least two thirds of relevant degree requirement.

Major in Aviation, B.S.

A minimum of 106 hours (59 upper-division hours)

► Required Core Courses (94 hours):

AVIA 120	Flight Operations	2
AVIA 123	Aviation Law & Regulations I	3
AVIA 124	ATC/Airspace I	2
AVIA 173	Meteorology	4
AVIA 176	Private Pilot I	5
AVIA 177	Private Pilot II	5
AVIA 178	Private Pilot III	5
AVIA 223	Aviation Law & Regulations II	3
AVIA 224	ATC/Airspace II	2
AVIA 276	Instrument Rating I	5
AVIA 277	Instrument Rating II	5
AVIA 278	Instrument Rating III	5
AVIA 279	Aerodynamics and Performance I	3
AVIA 305	Aircraft Systems I	3

Aviation

AVIA 376	Commercial Pilot I	8
AVIA 377	Commercial Pilot II	8
AVIA 378	Commercial Pilot III	8
AVIA 379	Aerodynamics & Performance II	3
AVIA 396	Aviation Colloquium	4-6
AVIA 405	Aircraft Systems II	3
AVIA 477	Human Factors & Aviation Safety I	4
AVIA 479	Human Factors & Aviation Safety II	4

► Required Core Electives (12 hours):

At least 12 hours from the following: 12

AVIA 302	Flight Simulation Challenge (1)
AVIA 350	Mission Flying Theory and Flight (2)
AVIA 375	Flight Instructor Theory (4)
AVIA 402	Simulation Innovation (2)
AVIA 460	Professional Skills for Pilots (2)
AVIA 468	Flight Instructor Flight Training (3)
AVIA 470	Fundamentals of Instruction (1)
AVIA 472	Instrument Instructor Flight (7)
AVIA 473	Advanced Practicum in Flight (1-12)
AVIA 476	Add-on Class Rating (4)
AVIA 478	Add-on CFI Rating (4)

Recommended Minor:

A minor in Business Administration is recommended.

Recommended Courses:

The following courses are recommended:

Mission Aviation:

ANTH 124, AVIA 350, COMM 330, EMER 104-105, PREL 337, RELH 311, RELP 235, 319, SOWK 121

Commercial Aviation:

AVIA 450, COMM 223, 330, ECON 261, MGMT 361, 465

Major in Aviation, A.S.

A minimum of 64 hours (35 upper-division hours)

► Required Core Courses (42 hours):

AVIA 120	Flight Operations	2
AVIA 123	Aviation Law & Regulations I	3
or AVIA 223	Aviation Law & Regulations II	3
AVIA 124	ATC/Airspace I	2
or AVIA 224	ATC/Airspace II	2
AVIA 173	Meteorology	4
AVIA 276	Instrument Rating I	5
AVIA 277	Instrument Rating II	5
AVIA 278	Instrument Rating III	5
AVIA 279	Aerodynamic & Performance I	3
or AVIA 379	Aerodynamic & Performance II	3

AVIA 305	Aircraft Systems I	3
or AVIA 405	Aircraft Systems II	3
AVIA 376	Commercial Pilot I	8
AVIA 377	Commercial Pilot II	8
AVIA 378	Commercial Pilot III	8
AVIA 396	Aviation Colloquium	2-3
AVIA 470	Fundamentals of Instruction	1
AVIA 477	Human Factors & Aviation Safety I	4
or AVIA 479	Human Factors & Aviation Safety II	4

General Education Package

Those students who are prepared to engage the Honors Program General Education package are strongly encouraged to do so. This program engages the qualities of critical thinking and problem-solving to a high level. Simultaneous reduction of General Education credit-hour commitment, frees up space for additional aviation electives or FAA certificates, or both. Further guidance is available from Admissions and the Student Success Center.

Recommended individual GE Courses:

Physics: PHYS 111 (4)

Math: STAT 222 (4)

Physical Fitness: ESAC 100 or 300 courses (8-10 credits)

Minor in Aviation

A minimum of 28 hours (6 upper-division hours)

► Required Core Courses (22 hours):

AVIA 120	Flight Operations	2
AVIA 123	Aviation Law & Regulations I	3
or AVIA 223	Aviation Law & Regulations II	3
AVIA 124	ATC/Airspace I	2
or AVIA 224	ATC/Airspace II	2
AVIA 176	Private Pilot I	5
AVIA 177	Private Pilot II	5
AVIA 178	Private Pilot III	5

► Required Electives:

Take at least 6 hours from the following:

Additional AVIA courses, selected in consultation with the advisor. Include at least 6 upper-division hours from AVIA 305, 350, 379, 402, 473, 477, or 479.

Aviation

SERVICE COURSE:

(Not applicable to a major or minor in this department)

AVIA 101 **1 F, W, S** **Introduction to Flight**

An introduction to the elements and science of flight. Flight instruction on basic maneuvers of flight and landings. Survey of aircraft types, design considerations, and role applications. Brief history of aviation and its safety programs.

LOWER-DIVISION COURSES:

AVIA 102 **1 F** **Flight Simulation Challenge I**

Flight and interactive scenario based challenges based upon real life aviation incidents and accidents. Challenge yourself in a virtual simulation environment with a licensed instructor through aviation industry standard FITS (FAA/Industry Training Standards). No experience required.

AVIA 107 **2 S** **Remote Pilot Certificate**

This course includes both ground theory and flight experience to prepare students for the FAA Part 107 written exam. Successful completion of this course allows work in various fields for compensation or hire. Students will also have the opportunity to fly multiple variations of drones to fully understand their flight characteristics. Odd years.

AVIA 120 **2 F** **Flight Operations**

Flight School safety and best practices, fueling and dispatch, airworthiness, FAA medical rules and considerations, line orientation, Part 141 orientation. FAA

Aviation Handbooks, ACS, Introduction to threat and error management.

AVIA 123 **3 W** **Aviation Law and Regulations I**

Constitutional law and historical background of federal aeronautical regulators, administrative law construction and survey (FAR and AIM). Private Pilot law, Commercial Pilot law, International law, Airworthiness, Directives. Odd years.

AVIA 124 **2 W** **Air Traffic Control and Airspace I**

ATC system, operation, procedures and requirements within the VFR environment, towered operations, radar operations, navigation aids (capability, certification and usage) GPS, WAAS, SBAS. Even years.

AVIA 173 **4 F** **Meteorology**

Explores the causes of weather phenomena and patterns. Identifying weather hazards, meteorological flight planning, aviation weather equipment, and consideration of weather conditions as they relate to aircraft and flight performance. Even years.

AVIA 176 **5 Su, F, W, S,** **Private Pilot I**

Flight and ground training from beginning to the successful completion of Phase 4, including the pre-solo knowledge exam.

AVIA 177 **5 Su, F, W, S** **Private Pilot II**

Flight and ground training from the beginning of Phase 5 to the successful completion of the Stage II check. Includes first solo flight and cross-country written exam.

AVIA 178 **5 Su, F, W, S** **Private Pilot III**

Flight and ground training from first solo cross-country and ends with the successful completion of the final course Stage III check. The FAA knowledge test is also passed. The pilot is now eligible for the final FAA Practical Test.

AVIA 223 **3 W** **Aviation Law and Regulations II**

Administrative law construction and survey (FAR and AIM), instrument pilot law, commercial operator law, enforcement actions, NTSB and ASRS, regulatory certification, rule making and legislation, Advisory Circulars. Even years.

AVIA 224 **2 W** **Air Traffic Control and Airspace II**

ATC system, operation, procedures and requirements within the IFR environment, non-towered operations, non-radar operations, engine-inoperative, standard gradients and protected areas. Odd years.

AVIA 273 **1-12 Su, F, W, S** **Practicum in Flight**

Practice in cross-country flying as pilot-in-command to various destinations. Practice with cockpit management skills, aeronautical decision making, and pre-flight planning. Prerequisite: AVIA 178 or Private Pilot Certificate. Repeatable to a maximum of 12 credits.

AVIA 276 **5 Su, F, W, S** **Instrument Rating I**

Flight, simulator and ground training from beginning to the completion of Phase III. Instrument scan, partial panel, unusual attitude recovery, GPS, VOR, and NDB navigation.

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AVIA 277 **5 Su, F, W, S** **Instrument Rating II**

Flight, simulator and ground training from the beginning of Phase 4 to the completion of Phase 5. Holding patterns, DME arcs, precision and non-precision approaches.

AVIA 278 **5 Su, F, W, S** **Instrument Rating III**

Flight, simulator and ground training from the beginning of Phase 6 to the completion of the final Stage IV check. The FAA knowledge test is also passed. The pilot is now eligible for the final FAA Practical Test.

AVIA 279 **3 S** **Aerodynamics and Performance I**

Relevant terminology and instructional understanding of the four forces in straight level, turning and climbing/descending flight, calculation of stall speed. High speed, transsonic and supersonic flight. High altitude aerodynamics turbine engine performance (propulsive efficiency and altitude effects for turbine engines, prop-fan and jet). Configuration changes. Odd years.

AVIA 240 **2 S** **Aviation History**

A survey of some pivotal events in the development of human flight from ancient times to the latest space exploration. Motive, context, and impacts of each historical event are analyzed critically. Even years.

UPPER-DIVISION COURSES:

AVIA 302 **1 Su, F, W, S** **Flight Simulation Challenge II**

Flight and interactive scenario based challenges based upon real life aviation incidents and accidents. Challenge yourself in a virtual simulation environment with a licensed instructor through aviation

industry standard FITS (FAA/Industry Training Standards). Prerequisites: AVIA 178 or AVIA 278.

AVIA 305 **3 S** **Aircraft Systems I**

Survey and understanding of pilot/static instruments, flight controls, fly-by-wire systems (i.e. flight law), reciprocating engine theory, ignition systems, hydraulic systems, autoflight/FMS/INS, APU/GPUs, fuel systems (tanks, pumps, delivery, landing gear and brakes). Even years.

AVIA 350 **2 F** **Mission Flying Theory and Practice**

Advanced mountain flying, operations at small unimproved airstrips, high altitude operations, and advanced short field techniques. Includes go/no-go decision-making before flight and during maneuvers. Even years.

AVIA 376 **8 Su, F, W, S** **Commercial Pilot I**

Commercial pilot level crosscountry ground and flight planing, ADM, in a scenariobased, training context. Course covers from beginning to the completion of the Stage I check at the end of Phase 3.

AVIA 377 **8 Su, F, W, S** **Commercial Pilot II**

Flight and ground training from Phase 4 to the completion of the Stage II check at the end of Phase 5. Includes Complex or TAA aircraft flying as well as the commercial maneuvers.

AVIA 378 **8 Su, F, W, S** **Commercial Pilot III**

Flight and ground training for Phases 6 to 8 including the completion of the final Stage III check in Phase 8. The FAA knowledge test is also passed. The pilot is now eligible for the final FAA Practical test.

AVIA 379 **3 S** **Aerodynamics and Performance II**

Relevant terminology and instructional understanding of stability and control (including spiral instability and dutch roll) low speed (high alpha) flight ground-effect, aspect ratio induced drag adverse yaw, aircraft performance requirements special flight conditions, reciprocating engine performance (propulsive efficiency and altitude effects). Even years.

AVIA 396 **0.5 F, W, S** **Aviation Colloquium**

Formal seminars on current Aviation Human Factors, Air Traffic Control (ATC) and Airspace and Aviation Safety-issues. Required every quarter for all aviation majors and minors.

AVIA 402 **2 Arr** **Simulation Innovation**

The student will in any combination, design, build, implement, test, and/or evaluate a synthetic or virtual flight or ground training device for the purpose of enhancing the learning or flight training environment. Prerequisite: AVIA 178. Repeatable up to 6 credits.

AVIA 405 **3 S** **Aircraft Systems II**

Survey and understanding of gyroscopic instruments, AHARS, turbine engine theory, propellers and governors, electrical systems (including standby systems), ice and rain protection, environmental and pneumatic systems, oxygen systems, fire detection/suppression (engine and cargo), emergency systems and survival equipment. Odd years.

AVIA 460 **2 S**
Professional Skills for Pilots

Job application, CV writing, interview process, seniority, bidding and simulation preparation. Emphasis on successfully completing IOE and faith and conscience in the workplace with a Part 121 Airline or similar operation. Odd years.

AVIA 468 **3 Su, F, W, S**
Flight Instructor Flight Training

Flight training from the instructor seat for all private and commercial pilot maneuvers for the relevant flight instructor practical test. Prerequisites or co-requisites: AVIA 375, AVIA 378, AVIA 470.*

AVIA 470 **1 F**
Fundamentals of Instruction

Explores various theories of teaching and learning, including the laws of readiness, primacy, with specific focus on passing the FAA FOI knowledge exam. Required for any FAA flight or ground instructor certification. Prerequisite: AVIA 278 or course lecturer permission. Odd years.

AVIA 472 **7 Su, F, W, S**
Instrument Instructor Ground and Flight Training

Flight and Ground training, lesson planning and simulator instruction proficiency for the Instrument Flight Instructor initial or additional rating practical test. Prerequisites: AVIA 378. Prerequisites or Corequisites: AVIA 278, 470

AVIA 473 **1-6 Su, F, W, S**
Advanced Practicum in Flight

Research or instruction in advanced flight operations. Advanced flight operations include night operations, IFR operations, Class B operations, and low altitude or high alpha flight. Special reports or research projects may be required in conjunction with these assignments.

Prerequisite: AVIA 273 and arrangement with Flight Center Faculty. Repeatable to a maximum of 12 credits. Qualifies for IP grading.*

AVIA 476 **4 F, W, S**
Add-on Class Rating

Flight and ground training for the addition of category or class rating to an existing pilot certificate. Prerequisite: AVIA 178 or AVIA 378.

AVIA 477 **4 W**
Human Factors and Aviation Safety I

From an Airline and ATC system context, review of pivotal and recent incidents/accidents. Safety studies (include latest Richard G. McSpadden Report) accident investigation methods and process, causal and contributing factors CRM and risk management. Even years.

AVIA 478 **4 Su, F, W, S**
Add-on CFI Rating

Flight and ground training for the addition of category or class rating to an existing flight instructor certificate. Prerequisite: AVIA 468 or AVIA 472.

AVIA 479 **4 W**
Human Factors and Aviation Safety II

From an environmental, airport and aircraft context, threat and error management, review of pivotal and recent incidents/accidents. Safety studies (incl Nall Report), Safety programs, AQP, Aero-medical factors Odd years.

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