

Bachelor of Science in Aviation

Option in Professional Flight

Last Updated: July 24, 2014

Advising packet:

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Aviation and Technology Department

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Program Overview for the B.S. Aviation with option in Professional Flight

Required Courses in Aviation

Lower Division Courses

Avia 002:	Introduction to Aviation
Avia 003:	Introduction to Private Pilot Part 141 Flight
Avia 031:	Aircraft Theory and Design
Avia 042:	Aircraft Systems
Avia 043:	Propulsion Theory
Avia 062:	Instrument Flight Techniques
Avia 063:	Instrument Rating Part 141 Flight
Avia 068:	Avionics and Airborne Communications
Avia 073:	Air Traffic Control
Avia 078:	Introduction to Aviation Management
Avia 091:	Aircraft Turbine Engines

Upper Division Courses

Avia 112:	Professional Commercial Pilot
Avia 113:	Commercial Professional Pilot Part 141 Flight
Avia 128:	Aviation Safety and Security
Avia 141:	Human Factors in the Aviation Environment (Biol 141)
Avia 173:	Aviation Law
Avia 176:	Airline Operations and Management
Avia 190:	Senior Capstone Seminar
Avia 194:	Introduction to Flight Engineering
Metr 110:	Aviation Meteorology
Bus 186:	Professional and Business Ethics (Phil 186)
Tech 198:	Technology and Civilization
Engr 100W:	Engineering Reports

Support Courses

Bus 20 or 20N (3)
Bus 90 (3)
Chem 1A (5)
Phys 2A and Phys 2B (8) ** or Phys 50 and Phys 51 (8)
Math 71 (3) *** or Math 30P (5) or Math 30 (3)
2-Unit Elective

Course Descriptions for the B.S. Aviation with option in Professional Flight

Lower Division

AVIA 002: Introduction to Aviation

Description: Concepts, responsibilities, and professional ethics of an aviation professional. History of aviation, FAA certification, qualifications and privileges of aviation professionals. Career opportunities, career paths and progression.

AVIA 003: Introduction to Private Pilot Part 141 Flight

Description: This course covers the FAA requirements leading up to the award of the FAA Private Pilot Certificate. The course consists of flight training segments in an FAA-approved FAR part 141 flight training program. Prerequisite: AVIA 002

AVIA 031: Aircraft Theory and Design

Description: Aerodynamics and aeroelastics force. Load analysis of flight vehicles. Aircraft design optimization, material selection along with, safe-life, fail-safe and damage tolerance in design. Prerequisite: PHYS 2A, MATH 71. Misc/Lab: Lecture 2 hours/Lab 3 hours.

AVIA 042: Aircraft Systems

Description: Operational and analytical aspects of key aircraft systems such as propulsion, flight control, electrical, and hydraulic. Reliability and maintainability concepts related to the design of aircraft systems. Emphasis is placed on general aviation aircraft. Prerequisite: PHYS 2A, AVIA 2. Misc/Lab: Lecture 2 hours/lab 3 hours.

AVIA 043: Propulsion Theory

Description: Propulsion theory of piston engines. Aircraft fuel systems and components. Fundamental systems, maintainability, and reliability methods. Aviation regulations related to engines. Maintenance cycles for engines and components. Prerequisite: PHYS 2A. Misc/Lab: Lecture 2 hours/lab 3 hours.

AVIA 062: Avionics and Airborne Communication

Description: Flight procedures, radio navigation, air traffic control, use of instrument charts. Flight simulator exercises on instrument flight maneuvers, departure and approach procedures. Prerequisite: AVIA 2. Misc/Lab: Lecture 2 hours/lab 3 hours..

AVIA 063: Instrument Rating Part 141 Flight

Description: This course covers the FAA requirements leading up to the award of the FAA Instrument Rating Certificate. The course consists of 29 instrument flight training segments in an FAA approved FAR part 141 instrument flight training program. Prerequisite: Avia 003 or FAA Private Pilot Certificate, Avia 73

AVIA 068: Avionics and Airborne Communications

Description: Communications and navigation systems installed on a typical general aviation aircraft. History of avionics. Laboratory exercises will include field-testing and airworthiness evaluation. Pre/corequisite: AVIA 42. Misc/Lab: Lecture 2 hours/lab 3 hours.

AVIA 073: Air Traffic Control

Description: Air Traffic Control System Structure and Communications. Current configuration and future design of the National Airspace System. Oceanic and International Air Traffic Control. Automation issues and Emerging Technologies. Prerequisite: AVIA 2.

AVIA 078: Introduction to Aviation Management

Description: History of aviation management. Safety, security, community relations, aviation unions, and private and governmental relationships. National Airspace System. Future Airspace System. International airspace systems.

AVIA 091: Aircraft Turbine Engines

Description: A study of gas turbine fundamentals, including various gas turbine cycles, components and component efficiency, thrust, specific fuel consumption, duct flow and inlet diffuser, centrifugal and axial compressors, combustion chambers and jet nozzles for aircraft propulsion. Prerequisite: AVIA 43.

Upper Division**AVIA 112: Professional Commercial Pilot**

Description: This course covers material necessary for the FAA requirements leading up to the award of the FAA Commercial Pilot Certificate. This course is formatted as a ground school and covers the aeronautical knowledge requirements for the Commercial Pilot Knowledge Test. Prerequisite: Avia 002, Avia 31, Avia 42, Avia 43, Avia 91, Avia 092

AVIA 113: Commercial Professional Pilot Part 141 Flight

Description: This course covers the FAA requirements leading up to the award of the FAA Commercial Pilot Certificate. The course consists of 58 flight training segments in an FAA approved FAR part 141 flight training program. Prerequisite: FAA Private Pilot Certificate Co-requisite: AVIA 112

AVIA 128: Aviation Safety and Security

Description: Safety in aviation design, operation, and maintenance; hazardous materials; airport environment issues; security regulations for aviation. Prerequisite: AVIA 2.

AVIA 141: Human Factors in the Aviation Environment (Biol 141)

Description: Effects of time zone changes, sleep disruption, drugs on pilot performance. Role of FAA inspectors, physicians, cabin attendants, unions. Cockpit crew coordination; pilot psychology; aviation safety and accident investigation. Experimental avionics. Prerequisite: Upper division standing. Notes: Not an elective in most department majors.

AVIA 173: Aviation Law

Description: Law and legal issues in aviation from both a national and international perspective. Rights and responsibilities of individuals, organizations, and the aviation community. Regulations and liability pertaining to the design, manufacture, operation and maintenance of aircraft. Prerequisite: AVIA 78.

AVIA 176: Airline Operations and Management

Description: Aspects of managing air transportation companies. Integration of technical, environmental, market and regulatory considerations in the decision-making process in airline management. Future planning techniques. Prerequisite: AVIA 78, BUS 140.

AVIA 190: Senior Capstone Seminar

Description: Current industry analysis and career development; leadership skills for an aviation professional. Aviation standard procedures. Ethical principles for Aviation. Student projects related to Aviation major. Prerequisite: Graduating senior, major form completed.

AVIA 194: Pilot Avionics and General Aviation Systems

Description: Operations of avionics as found on modern general aviation aircraft and turboprop/turbofan aircraft. Major systems used on general aviation aircraft including GPS, FMS, navigation systems, fuel systems, hydraulic systems, environmental systems, landing gear. Prerequisite: AVIA 42, AVIA 43.

Major Academic Plan

Major: Aviation with an Option in Professional Flight

Degree: BS

This sheet is available electronically on the "All Major Forms" page of the AvTech website

implementation date: August 25, 2014

last updated June 5, 2014

First Year

Meet with your advisor each semester.

Fall Semester 20__			
Course	Prerequisites	Area	Units
Avia 002	----	Major	3
Avia 003	----	Major	2
Avia 078	----	Major	3
Math 071	Math 008 or Equivalent	GE B4	3
			Semester Total: 11

Spring Semester 20__			
Course	Prerequisites	Area	Units
Engl 001A	----	GE A2	3
Bus 020 or 020N		Minor	3
GE Area A1 course *	----	GE A1	3
Phys 002A *	Math 008 or Equivalent	GE B3	4
			Semester Total: 13

Second Year

Fall Semester 20__			
Course	Prerequisites	Area	Units
Avia 062	----	Major	3
Avia 063	----	Major	2
Avia 073	Avia 2	Major	3
Phys 002B *	Phys 2A	GE	4
			Semester Total: 12

Spring Semester 20__			
Course	Prerequisites	Area	Units
Avia 031	Phys 2A, Math 71	Major	3
Avia 043	Phys 2A	Major	3
BUS 090	Math 71	Minor	3
Chem 001A **	See Catalog	GE B1	5
PASS THE WST			Semester Total: 14

Third Year

Fall Semester 20__			
Course	Prerequisites	Area	Units
Avia 042	Phys 2A, Avia 2	Major	3
Avia 068	Coreq : Avia 42	Major	3
Avia 141	----	Major/GE B2	3
GE Area A3 course *	----	GE A3	3
			Semester Total: 12

Spring Semester 20__			
Course	Prerequisites	Area	Units
Avia 128	Avia 2	Major	3
Avia 173	Avia 78	Major	3
Metr 110	----	Major	3
GE Area D2 course *	----	GE D2	3
			Semester Total: 12

Fourth Year

Fall Semester 20__			
Course	Prerequisites	Area	Units
Avia 091	Avia 43	Major	3
Avia 112		Major	3
Avia 113	----	Major	2
GE Area C1 course *	----	GE C1	3
Semester Total:			11

Fifth Year

Fall Semester 20__			
Course	Prerequisites	Area	Units
Avia 193	Phys 2A, Math 71, Avia 31	Major	3
Avia 194	Avia 42, Avia 43	Major	3
Bus 186	Upper Div Standing, Pass WST; Co-req: 100W	Major	3
Engr 100W **	ENGL 1B, Pass WST, Upper Division	GE R, Z	3
Semester Total:			12

NOTES

* course meets a core GE requirement

** course meets a SUSU Studies (UDGE) requirement

Notes to students (how to make this your personal academic planner):

- font format: Format > Cells > Font > Strikethrough)
- Move all courses you HAVE taken to past semesters
- Move all courses NOT TAKEN to current or future semesters
- Check each course for prereqs/take them FIRST
- Make sure you take your Math, Phys, Chem, BUS 90, and Econ classes as early in your program as possible.
- When you modify this academic planner for your personal academic schedule, **do not move** any class from the Fall to the Spring semester **OR** vice versa, without meeting with your program advisor first. Some courses are offered ONLY in the Fall semester and some only in the Spring semester.
- Change "Year One" / "Year Two" / "Year Three" etc. to reflect the actual semester. Ex.: Fall 13'

Spring Semester 20__			
Course	Prerequisites	Area	Units
Avia 190	Graduating Senior	Major	3
GE Area E course	----	GE E	3
GE Area C2 course *	----	GE C2	3
GE Area D3 course	----	GE D3	3
File for graduation			Semester Total: 12

Spring Semester 20__			
Course	Prerequisites	Area	Units
Avia 176	Avia 78, [Bus 140]--see advisor	Major	3
Tech 198 **	100W, Pass WST, Upper Div Standing	GE V	3
Upper Division Electives in the Major (see your advisor)		Major	5
Semester Total:			11

Minor in Business

Most students will elect to complete two additional courses to obtain a minor

in Business. Please see your advisor and the Business Student Advising

Center (BSAC) in BEC008.

Note to Aviation students from earlier Aviation programs:

Students in the BS Aviation admitted prior to Fall 2014 may elect to migrate to the new Aviation programs. To do this you must make the request with your advisor and establish an approved, signed Academic Planner. Any exceptions or changes to the published new program must be included on the Planner and establish an approved, signed Academic Planner. Any exceptions or changes to the published new program must be included on the Planner and signed and dated by your Academic Advisor. The planner must be filed in the Department office with your application for graduation.

Aviation General Education Worksheet



SAN JOSÉ STATE
UNIVERSITY

Last Name (print) _____ First _____

Student ID # _____

Catalog Year _____ Major _____

Minor _____

Core General Education	Course	Units	Where Taken	Grade
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Categories marked with * require a grade of C or better

A. Basic skills (9 units) Complete one course in each area.

A1	Oral Communication *			
A2	Written Communication 1A*			
A3	Critical Thinking *			

B. Science & Math (9 units)

B1	Physical Science	---Pending Completion of Aviation Degree---		
B2	Life Science	---Pending Completion of Aviation Degree---		
B3	Laboratory Science	---Pending Completion of Aviation Degree---		
B4	Mathematical Concepts *	---Pending Completion of Aviation Degree---		

C. Humanities & Arts (9 units) Complete one course in each area.

C1	Arts	AMS 1A-B		
C2	Letters	AMS 1A-B		
C3	Written Communication 1B*			

D. Social Sciences (9 units) Complete one course in each category.

D1	Human Behavior			
D2	Comparative systems	AMS 1A-B		
D3	Social Issues	AMS 1A-B		

E. Human Understanding & Development (3 Units)

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Prerequisites to SJSU Studies

Pass Writing Skills Test yes ☐ N/C ☐

Upper Division yes ☐ no ☐

SJSU Studies	Course	Units	Where Taken	Grade
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Complete one course in each area.

Area R	Earth & environment	Engr 100W		
Area Z	Written Communication II*	Engr 100W		
Area S	Self, Society & Equality in the U.S.	Bus 186		
Area V	Culture, Civilization & Global Understanding	Tech 198		

Graduation Requirements	Course	Units	Where Taken	Grade
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American Institutions

F1	U.S. History	AMS 1A-B		
F2	U. S. Constitution	AMS 1A-B		
F3	California Government	AMS 1A-B		

Physical Education Activity (2 courses)

1	-----	Waived AY 2014-2015		
2	-----	Waived AY 2014-2015		

Completed by: _____

Date: _____