Undergraduate Academic Board
Agenda

September 11, 2009
ADM 204 at 2:00-5:00

I. Roll

( ) Hilary Davies	( ) Cheryl Smith	( ) Deborah Fox
( ) Bettina Kipp Lavea	( ) Toni Croft	( ) David Meyers
( ) Suzanne Forster	( ) Oliver Hedgepeth	( ) Jeanne Eder
( ) Utpal Dutta	( ) Kenrick Mock	( ) Kitty Deal
( ) Susan Wilson	( ) Marion Yapuncich	( ) (VACANT)
( ) Hilary Seitz	( ) Kevin Keating	( ) (VACANT, USUAA)

II. Approval of the Agenda (pg. 1)

III. Approval of Meeting Summary for August 28, 2009 (pg. 2-3)

IV. Administrative Report

A. Associate Vice Provost Bart Quimby

B. Registrar John Allred
POLICY ISSUES (30 minutes):
- **Admission and graduation during the same semester**
- **Incomplete grades**

V. Chair's Report

A. UAB Chair- Hilary Davies

B. GERC Chair- Len Smiley

VI. Program/Course Action Request – Second Reading

Chg	ATP A116	Instrument Ground School (3 cr) (3+0) (pg. 4-8)
Chg	ATP A200	Commercial Ground School (3 cr) (3+0) (pg. 9-13)
Chg	ATP A300	CFI Ground School (3 cr) (3+0) (pg. 14-20)
Add	BIOL A365	Astrobiology (3 cr) (3+0) (cross listed w/ASTR A365) (pg. 21-26)
Add	ASTR A365	Astrobiology (3 cr) (3+0) (cross listed w/BIOL A365) (pg. 27-32)

VII. Program/Course Action Request – First Reading
NONE

VIII. Old Business

IX. New Business

A. Is it permissible for a faculty member to sign the CAR/PAR in more than one capacity?
If so, is there a limit to the number of lines that one faculty member can sign?
Examples: Initiator and Department Chair, Initiator and UAB/GAB Chair, Initiator and Associate Dean, Initiator and Associate Vice Provost.

B. Clarification on who can present curriculum at UAB/GAB. Faculty member or faculty representative is understood.
What if a person is tenured in a department but has a full-time administrative assignment?

X. Informational Items and Adjournment

A. Curriculum Log
B. Curriculum Handbook
C. Catalog Copy
D. Accreditation website (core themes listed at bottom of website)

Undergraduate Academic Board
Summary

August 28, 2009
ADM 204 at 2:00-5:00

I. Roll

(x) Hilary Davies	(x) Cheryl Smith	(x) Deborah Fox
(x) Bettina Kipp Lavea	(x) Toni Croft	( ) (VACANT, CAS)
(x) Suzanne Forster	( ) Oliver Hedgepeth	( ) (VACANT, FS At Large, CAS)
(x) Utpal Dutta	(x) Kenrick Mock	( ) (VACANT, FS At Large)
(x) Susan Wilson	(x) Marion Yapuncich	(x) Kitty Deal
( ) Hilary Seitz	(x) Kevin Keating	( ) (VACANT, USUAA)

II. Approval of the Agenda (pg. 1-2)
Justice did submit revisions
Approved

III. Approval of Meeting Summary for August 21, 2009 (pg. 3-4)
Approved

IV. Administrative Report

A. Associate Vice Provost Bart Quimby

B. Registrar John Allred
Degree works has been taken down until it is confirmed that it is secure

V. Chair's Report

A. UAB Chair- Hilary Davies
Still working on filling UAB positions

B. GERC Chair-

VI. Program/Course Action Request – Second Reading

Chg		Minor, Health & Fitness Leadership (pg. 5-6)
Chg		Occupational Endorsement Certificate, Fitness Leadership (pg. 7-9)
Chg	PEP A115	Fitness Leadership/ Group Fitness and Personal Training (3 cr) (3+0) (pg. 10-15)
Chg	PEP A116	Techniques in Group Fitness Instruction (2 cr) (1+2) (pg. 16-20)
Chg	PEP A117	Techniques in Personal Training (2 cr) (1+2) (pg. 21-26)
Del	PEP A215	Issues in Fitness Leadership (3 cr) (3+0) (pg. 27)
Del	PEP A216	Techniques in Fitness Instruction II (2 cr) (1+2) (pg. 28)
Del	PEP A217	Techniques in Personal Instruction II (2 cr) (1+2) (pg. 29)
Del	PEP A218	Techniques in Aqua Fitness Instruction (2 cr) (1+2) (pg. 30)

Approved PEP entire packet

Add	NS A439	Spirituality in Nursing (3 cr) (3+0) (pg. 31-35)

Approved

Chg	JUST A250	Development of Law (3 cr) (3+0)

Approved

VII. Program/Course Action Request – First Reading

Chg	ATP A116	Instrument Ground School (3 cr) (3+0) (pg. 36-40)
Chg	ATP A200	Commercial Ground School (3 cr) (3+0) (pg. 41-45)
Chg	ATP A300	CFI Ground School (3 cr) (3+0) (pg. 46-51)

Accepted for first reading

Add	BIOL A365	Astrobiology (3 cr) (3+0) (cross listed w/ASTR A365) (pg. 52-57)
Add	ASTR A365	Astrobiology (3 cr) (3+0) (cross listed w/BIOL A365) (pg. 58--64)

Remanded to GERC

VIII. Old Business

A. Clarification of agenda order

Doing away with college order on second reading

Order will stay the same as it did for first reading unless initiator does not submit revisions or does not attend meeting.

IX. New Business

A. UAB Goals for 2009-2010

GOAL 1: Update the Curriculum Handbook, as needed.

There are a few issues that may need more review during the 2009-2010 academic year. They include:

1. Digital signatures for the CARs and PARs.
2. Distance Education information linked to the Curriculum Handbook.
3. Is it permissible for a faculty member to sign the CAR/PAR in more than one capacity? If so, is there a limit to the number of lines that one faculty member can sign?
4. Clarification on who can present curriculum at UAB/GAB. Faculty member or faculty representative is understood. What if a person is tenured in a department but has a full-time administrative assignment?
5. Contact Hours. Examples do not seem to agree with the Summary.

GOAL 2: Continue to work with the Office of Academic Affairs and the Office of the Registrar to review policies and procedures for their impacts on academics, to ensure that faculty input and review by UAB and GAB is automatic.

GOAL 3: Update the plan for curriculum updates together with the GAB Chair and Associate Vice Provost Bart Quimby.

GOAL 4: Update the plan for curriculum updates together with the GAB Chair and Associate Vice Provost Bart Quimby.

GOAL 5: Support the establishment of the UAB/GAB Subcommittee on Assessment.

Approved modified goals for 2009-2010

A. Curriculum Policy Handbook (pg. 65-101)

X. Informational Items and Adjournment

A. Curriculum Log
B. Curriculum Handbook
C. Catalog Copy
D. Accreditation website (core themes listed at bottom of website)

Curriculum Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course or Program of Study

1a. School or College	1b. Division	1c. Department
CT CTC	AAVI Division of Aviation	ATP

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEU	5b. Contact Hours (Lecture + Lab)
ATP	A116	N/A	3 Credits	(3+0)

6. Complete Course/Program Title
Instrument Ground School

Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action ☒ Course ☐ Program

(mark appropriate boxes)

☐ Add
☒ Change
☐ Delete

☐ Prefix
☐ Credits
☐ Title
☐ Grading Basis
☒ Course Description
☐ Test Score Prerequisites
☐ Other Restrictions
  ☐ Class ☐ Level
  ☐ College ☐ Major
☒ Other CCG

☐ Course Number
☐ Contact Hours
☐ Repeat Status
☐ Cross-Listed/Stacked
☒ Course Prerequisites
☐ Co-requisites
☒ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Spring/2010 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13. List any programs or college requirements that require this course
Associate of Applied Science: Professional Piloting; Bachelor of Science in Aviation Technology: Professional Piloting

14. Coordinate with Affected Units: CTC, KPC, KODIAK, MSC, PWS, CBPP, LISTSERVE
Department, School, or College
Initiator Signature Date

15. ☐ General Education Requirement
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

16. Course Description
Provides preparation for the Federal Avition Administration (FAA) Instrument Pilot Knowledge Test. Includes attitude instrument flying, air traffic control and navigation facilities, pilot responsiblities, Instrument Flight Rules (IFR), en route and approach navigation charts, airspace and airway route system.

SPECIAL NOTE: Two hours in a Flight Training Device (FTD) is required.

17a. Course Prerequisite(s) (list prefix and number)	17b. Test Score(s)	17c. Co-requisite(s) (concurrent enrollment required)
N/A	N/A	N/A

17d. Other Restriction(s)	17e. Registration Restriction(s) (non-codable)
☐ College ☐ Major ☐ Class ☐ Level	FAA Private Pilot Certificate or equivalent.

18. ☒ Mark if course has fees

19. Justification for Action
The current prerequisite and restrictions are allowing too many inadequately prepared students to enter this class. This change in prerequisite and registration restrictions will help to reduce this problem and will also help to ensure our students have a better opportunity to benefit from the course content.

Initiator (faculty only) Date

Mark E. Madden
Initiator (TYPE NAME)

____ Approved
____ Disapproved: _____
Department Chairperson Date

____ Approved
____ Disapproved: _____
Curriculum Committee Chairperson Date

____ Approved
____ Disapproved: _____
Dean/Director of School/College Date

____ Approved
____ Disapproved: _____
Undergraduate or Graduate Academic Board Chairperson Date

____ Approved
____ Disapproved: _____
Provost or Designee Date

COURSE CONTENT GUIDE (CCG)
UNIVERSITY OF ALASKA ANCHORAGE
COMMUNITY AND TECHNICAL COLLEGE

DIVISION: AAVI DATE: Fall 2009
DEPARTMENT: ATP

COURSE NUMBER: ATP A116 CREDITS: 3
COURSE TITLE: Instrument Ground School

I. Course Description:

Provides preparation for the Federal Aviation Administration (FAA) Instrument Pilot Knowledge Test. Includes attitude instrument flying, air traffic control and navigation facilities, pilot responsibilities, Instrument Flight Rules (IFR), en route and approach navigation charts, airspace and airway route system.

Special Note: Two hours in Flight Training Device required.

II Course Design:

A. Designed for students pursuing an Associate of Applied Science (AAS) degree in Professional Piloting; Bachelor of Science in Aviation Technology (BSAT) degree, Professional Piloting emphasis.

B. 3.0 credits (3.0).

C. Total time of student involvement: 135 hours.

1. 3 hours lecture/week for a total of 45 hours.
2. 6 hours of outside work per week for a total of 90 hours.

D. This is a required course for the AAS: Professional Piloting. BSAT, Professional Piloting emphasis.

E. Lab fees are assessed.

F. Course may be taught in any time frame but not less than three weeks.

G. This is a revised course.

H. Coordinated with: CTC, KPC, KODIAK, MSC, PWS, CBPP, LISTSERVE.

I. This is a 100-level course because it provides basic knowledge.

III. Course Activities:

The course will be conducted by lecture, practical exercises, and the use of an occasional guest speaker.

IV. Course Prerequisite: None.

V. Registration Restriction: FAA Private Pilot Certificate or equivalent.

VI. Course Evaluation:

A. Grades will be A - F.

B. Evaluation will be based on objective testing, attendance, and successful completion of each assigned exercise.

C. Each instructor will explain specific grading policies and requirements at the beginning of the semester.

VII. Content Outline:

1.0 SAFETY
- 1.1 General Rules
- 1.2 Class Conduct
- 1.3 Building Exit

2.0 IFR Federal Aviation Regulations (FAR's)

3.0 NAVIGATION DEVICES

4.0 ATTITUDE INSTRUMENT FLYING

5.0 FLIGHT PLANNING
- 5.1 Certificates and Ratings
- 5.2 Preflight Action for Flight
- 5.3 Flight Plan
- 5.4 Route Planning
- 5.5 Flight Planning Computer Operation
- 5.6 Aircraft Performance
- 5.7 Aircraft Operating Limitations
- 5.8 Aircraft Systems
- 5.9 Weather Considerations

6.0 DEPARTURE
- 6.1 Authority and Pilot Limitations
- 6.2 Air Traffic Control (ATC) Communications
- 6.3 Taxi and Takeoff Procedures
- 6.4 Departure Procedures
- 6.5 Pre-takeoff Check
- 6.6 Airport Facilities
- 6.7 Flight Service Station (FSS) Facilities

7.0 EN ROUTE
- 7.1 Limitations
- 7.2 Procedures
- 7.3 ATC Clearances

7.4 Oxygen Requirements
7.5 Emergencies
7.6 Electronic Navigation
7.7 En route Charts
7.8 En route Computer Use
7.9 Attitude Instrument Flying
7.10 Unusual Flight Conditions
7.11 Airway Route System
7.12 Airspace Considerations
7.13 Air Route Traffic Control Centers (ARTCC) Facilities
7.14 En route Weather Services

8.0 ARRIVAL
8.1 Approach Control
8.2 Holding Procedures
8.3 Precision Approaches
8.4 Non-precision Approaches
8.5 Missed Approach Procedures
8.6 Landing Procedures
8.7 Logging of Flight Time
8.8 Wake Turbulence Considerations
8.9 Terminal Area
8.10 Approach Charts

9.0 AERO MEDICAL FACTORS

10.0 EMERGENCIES

VIII. Instructional Goals:

Prepares the students for the FAA Instrument Pilot Knowledge Test.

IX. Course Outcomes and Assessment Procedures:

Upon successful completion of this course, students will be able to:	**Assessment Procedures**
Describe the operation of an aircraft under Instrument Flight Rules in the National Airspace System, including interpretation of instrument reference publications.	Written assignments Oral discussions Written exams
Explain the systems and appliances found on a typical instrument qualified general aviation airplane.	Written assignments Oral discussions Written exams
Plan an instrument cross-country flight taking into consideration airspace and regulatory requirements, weather, and airplane performance.	Written assignments Oral discussions Written exams

X. Suggested Text:

Willits, P. (Ed.). (latest edition). *Guided flight discovery: Instrument commercial.* Englewood, CO: Jeppesen Sanderson.

XI. Bibliography:

Department of Transportation. (2007). *Aeronautical information manual* (Federal Aviation Administration). Washington, DC: U.S. Government Printing Office.

Flight Standards Service. (2004). *Instrument rating practical test standards*. (Federal Aviation Administration Order –S-8081-4D). Washington, DC: U.S. Government Printing Office.

Haney, R. W. (1998). *Flight school policy and safety procedures handbook.* Unpublished manuscript. University of Alaska Anchorage.

Haney, R. W. (2007). *Instrument pilot ground school training course outline*. Unpublished manuscript. University of Alaska Anchorage.

Curriculum Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course or Program of Study

1a. School or College	1b. Division	1c. Department
CT CTC	AAVI Division of Aviation	ATP

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEU	5b. Contact Hours (Lecture + Lab)
ATP	A200	N/A	3 Credits	(3+0)

6. Complete Course/Program Title
Commercial Ground School

Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action ☒ Course ☐ Program

☐ Add
☒ Change
(mark appropriate boxes)
☐ Delete

☐ Prefix
☐ Credits
☐ Title
☐ Grading Basis
☒ Course Description
☐ Test Score Prerequisites
☐ Other Restrictions
☐ Class ☐ Level
☐ College ☐ Major
☒ Other CCG

☐ Course Number
☐ Contact Hours
☐ Repeat Status
☐ Cross-Listed/Stacked
☒ Course Prerequisites
☐ Co-requisites
☒ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Spring/2010 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13. List any programs or college requirements that require this course
Associate of Applied Science: Professional Piloting; Bachelor of Science in Aviation Technology: Professional Piloting

14. Coordinate with Affected Units: CTC, KPC, KODIAK, MSC, PWS, CBPP, LISTSERVE Department, School, or College
Initiator Signature Date

15. ☐ General Education Requirement
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

16. Course Description
Provides preparation for the Federal Aviation Administration (FAA) Commercial Pilot Knowledge Test. Includes advanced studies of Private Pilot and Instrument Pilot topics, high performance and complex aircraft, commercial flight maneuvers, and commercial Federal Aviation Regulatiions (FAR's).

17a. Course Prerequisite(s) (list prefix and number)	17b. Test Score(s)	17c. Co-requisite(s) (concurrent enrollment required)
N/A	N/A	N/A

17d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

17e. Registration Restriction(s) (non-codable)
FAA Instrument Rating or equivalent.

18. ☐ Mark if course has fees

19. Justification for Action
The current prerequisite and restrictions are allowing too many inadequately prepared students to enter this class. This change in prerequisite and registration restrictions will help to reduce this problem and will also help to ensure our students have a better opportunity to benefit from the course content.

Initiator (faculty only) Date

Mark E. Madden
Initiator (TYPE NAME)

____ Approved
____ Disapproved: _____
Department Chairperson Date

____ Approved
____ Disapproved: _____
Curriculum Committee Chairperson Date

____ Approved
____ Disapproved: _____
Dean/Director of School/College Date

____ Approved
____ Disapproved: _____
Undergraduate or Graduate Academic Board Chairperson Date

____ Approved
____ Disapproved: _____
Provost or Designee Date

COURSE CONTENT GUIDE (CCG)
UNIVERSITY OF ALASKA ANCHORAGE
COMMUNITY AND TECHNICAL COLLEGE

DIVISION: AAVI DATE: Fall 2009
DEPARTMENT: ATP

COURSE NUMBER: ATP A200 CREDITS: 3
COURSE TITLE: Commercial Ground School

I. Course Description:

Provides preparation for Federal Aviation Administration (FAA) Commercial Pilot Knowledge Test. Includes advanced studies of Private Pilot and Instrument Pilot topics, high performance and complex aircraft, commercial flight maneuvers, and commercial Federal Aviation Regulations (FAR's).

II. Course Design:

A. Designed for students pursuing an Associate of Applied Science (AAS) degree in Professional Piloting. Bachelor of Science in Aviation Technology (BSAT), Professional Piloting emphasis.

B. 3.0 credits (3+0).

C. Total time of student involvement: 135 hours.

1. 3 hours lecture/week for a total of 45 hours.
2. 6 hours of outside work per week for a total of 90 hours.

D. This is a required course for the Associate of Applied Science degree, Professional Piloting and Bachelor of Science in Aviation Technology, Professional Piloting emphasis.

E. No lab fees are assessed.

F. Course may be taught in any time frame but not less than three weeks.

G. This is a revised course.

H. Coordinated with: CTC, KPC, KODIAK, MSC, PWS, CBPP, LISTSERVE.

I. This is a 200-level course because it builds on knowledge and information gained during and demonstrated by earning the Private Pilot Certificate and Instrument Pilot Rating.

III. Course Activities:

The course will be conducted by lecture, practical exercises and the use of an occasional guest speaker.

IV. Course Prerequisite: None.

V. Registration Restriction: FAA Instrument Rating or equivalent.

VI. Course Evaluation:

A. Grades will be A - F.

B. Evaluation will be based on objective testing, attendance, and successful completion of each assigned exercise.

C. Each instructor will explain specific grading policies and requirements at the beginning of the semester.

VII. Content Outline:

1.0 SAFETY
- 1.1 General Rules
- 1.2 Class Conduct
- 1.3 Building Exit

2.0 REVIEW
- 2.1 Four Forces Acting on an Airplane in Flight
- 2.2 Principles of Lift
- 2.3 Flight Control Systems
- 2.4 Secondary Flight Controls
- 2.5 Three Axes of Rotation
- 2.6 Left-turning Tendency
- 2.7 Multi-engine Considerations

3.0 POWERPLANT AND SYSTEMS OF A COMPLEX AIRPLANE
- 3.1 The Reciprocating Engine
- 3.2 Fuel Systems
- 3.3 Engine Cooling
- 3.4 Engine Lubrication System
- 3.5 Ignition System
- 3.6 Constant Speed Propellers
- 3.7 Electrical System
- 3.8 Utility Systems
- 3.9 Retractable Landing Gear

4.0 FLIGHT INSTRUMENTS
- 4.1 Magnetic Compass
- 4.2 Pressure (Pitot-Static System)

- 4.3 Gyroscopic
- 4.4 S1ip/Skid Indicator

5.0 WEIGHT AND BALANCE
- 5.1 Terms
- 5.2 Change of Weight (addition and subtraction)
- 5.3 Weight and its Effect on Performance
- 5.4 Balance and its Effect on Stability and Control
- 5.5 Weight and Balance Calculation Methods

6.0 AIRPLANE PERFORMANCE
- 6.1 Take-off Calculations
- 6.2 Climb Airspeeds
- 6.3 Time to Climb
- 6.4 Cruise Performance
- 6.5 Time to Descend
- 6.6 Landing Performance
- 6.7 Other

7.0 PRIMARY NAVIGATION
- 7.1 Types of Navigation
  - 7.1.1 Pilotage
  - 7.1.2 Dead reckoning
  - 7.1.3 Electronic navigation
- 7.2 Visual Flight Rules (VFR) Type Charts
  - 7.2.1 Sectional Aeronautical Charts
  - 7.2.2 World Aeronautical Charts
  - 7.2.3 VFR Terminal Area Charts
- 7.3 Instrument Flight Rules (IFR) Type Charts

8.0 THE NATIONAL AIRSPACE SYSTEM (NAS)
- 8.1 Airport Lighting and Marking
- 8.2 Runway Markings
- 8.3 Wind Direction/Landing Runway Indicators
- 8.4 Airport Operations

9.0 ELECTRONIC NAVIGATION AIDS

10.0 REVIEW OF INSTRUMENT PROCEDURES
- 10.1 Departure
- 10.2 Enroute
- 10.3 Arrival

11.0 WEATHER THEORY

12.0 PROBLEM WEATHER
- 12.1 Fronts
- 12.2 Turbulence
- 12.3 Fog
- 12.4 Icing
- 12.5 Thunderstorms

13.0 GATHERING WEATHER INFORMATION
- 13.1 Surface Analysis Chart
- 13.2 Weather Depiction Chart

13.3 Low Level Significant Weather Program
13.4 Radar Summary Chart
13.5 Aviation Weather reports
13.6 Aviation Weather forecasts

14.0 APPLICABLE COMMERCIAL FEDERAL AVIATION REGULATIONS (FAR's)

15.0 FLIGHT PLANNING PUBLICATIONS

16.0 MEDICAL FACTS FOR PILOTS

VIII. Instructional Goals:

Prepares the students for the FAA Commercial Pilot Knowledge Test.

IX. Course Outcomes and Assessment Procedures:

Upon successful completion of this course, students will be able to:	**Assessment Procedures**
Explain the rules governing Commercial Pilot privileges and limitations in the National Airspace System.	Written assignments Oral discussions Written exams
Describe the systems and appliances found on a typical commercial airplane.	Written assignments Oral discussions Written exams
Plan a commercial cross-country flight taking into consideration airspace and regulatory requirements, weather, and airplane performance.	Written assignments Oral discussions Written exams

X. Suggested Text:

Willits, P. (Ed.). (latest edition). *Guided flight discovery: Instrument commercial.* Englewood, CO: Jeppesen Sanderson.

XI. Bibliography:

Department of Transportation. (2007). *Aeronautical information manual* (Federal Aviation Administration). Washington, DC: U.S. Government Printing Office.

Flight Standards Service. (2002). *Commercial pilot practical test standards*. (Federal Aviation Administration Order –S-8081-12B). Washington, DC: U.S. Government Printing Office.

Haney, R. W. (2007). *Commercial pilot ground school training course outline*. Unpublished manuscript. University of Alaska Anchorage.

Haney, R. W. (1998). *Flight school policy and safety procedures handbook.* Unpublished manuscript. University of Alaska Anchorage.

Curriculum Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course or Program of Study

1a. School or College	1b. Division	1c. Department
CT CTC	AAVI Division of Aviation	ATP

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEU	5b. Contact Hours (Lecture + Lab)
ATP	A300	N/A	3 Credits	(3+0)

6. Complete Course/Program Title
CFI Ground School

Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action ☒ Course ☐ Program

☐ Add
☒ Change
(mark appropriate boxes)
☐ Delete

☐ Prefix
☐ Credits
☐ Title
☐ Grading Basis
☐ Course Description
☐ Test Score Prerequisites
☐ Other Restrictions
☐ Class ☐ Level
☐ College ☐ Major
☒ Other CCG

☐ Course Number
☐ Contact Hours
☐ Repeat Status
☐ Cross-Listed/Stacked
☒ Course Prerequisites
☐ Co-requisites
☒ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Spring/2009 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13. List any programs or college requirements that require this course
Bachelor of Science in Aviation Technology: Professional Piloting

14. Coordinate with Affected Units: CTC, KPC, KODIAK, MSC, PWS, CBPP, LISTSERVE Department, School, or College
Initiator Signature Date

15. ☐ General Education Requirement
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

16. Course Description
Prepares students for the Federal Aviation Adminstration (FAA) Certified Flight Instructor Knowledge Test. Includes principles of teaching and learning, analysis of student motivation, flight training syllabus, and the flight instructor's role and responsibilities. Covers performance and analysis of flight training maneuvers, advanced aerodynamics, fundamentals of instrument flight, flight training publications, and Federal Aviation Regulations (FAR's).

17a. Course Prerequisite(s) (list prefix and number)	17b. Test Score(s)	17c. Co-requisite(s) (concurrent enrollment required)
N/A	N/A	N/A

17d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

17e. Registration Restriction(s) (non-codable)
FAA Commercial Pilot Certificate with Instrument Rating or equivalent.

18. ☐ Mark if course has fees

19. Justification for Action
The current prerequisite and restrictions are allowing too many inadequately prepared students to enter this class. This change in prerequisite and registration restrictions will help to reduce this problem and will also help to ensure our students have a better opportunity to benefit from the course content.

Initiator (faculty only) Date

Mark E. Madden
Initiator (TYPE NAME)

____ Approved
____ Disapproved: _____
Department Chairperson Date

____ Approved
____ Disapproved: _____
Curriculum Committee Chairperson Date

____ Approved
____ Disapproved: _____
Dean/Director of School/College Date

____ Approved
____ Disapproved: _____
Undergraduate or Graduate Academic Board Chairperson Date

____ Approved
____ Disapproved: _____
Provost or Designee Date

COURSE CONTENT GUIDE (CCG)
UNIVERSITY OF ALASKA ANCHORAGE
COMMUNITY AND TECHNICAL COLLEGE

DIVISION: AAVI DATE: Fall 2009
DEPARTMENT: ATP

COURSE NUMBER: ATP A300 CREDITS: 3
COURSE TITLE: CFI Ground School

I. Course Description:

Prepares students for the Federal Aviation Administration (FAA) Certified Flight Instructor Knowledge Tests. Includes principles of teaching and learning, analysis of student motivation, flight training syllabus, and the flight instructor's role and responsibilities. Covers performance and analysis of flight training maneuvers, advanced aerodynamics, fundamentals of instrument flight, flight training publications, and Federal Aviation Regulations (FAR's).

II. Course Design:

A. Designed for students pursuing an Associate of Applied Science (AAS) degree in Professional Piloting; Bachelor of Science in Aviation Technology (BSAT) degree, Professional Piloting emphasis.

B. 3.0 credits (3+0).

C. Total time of student involvement: 135 hours.

1. 3 hours lecture/week for a total of 45 hours.
2. 6 hours of outside work per week for a total of 90 hours.

D. This is a required course for Bachelor of Science in Aviation Technology, Professional Piloting emphasis.

E. No lab fees.

F. Course may be taught in any time frame but not less than three weeks.

G. This is a revised course.

H. Coordinated with: CTC, KPC, KODIAK, MSC, PWS, CBPP, LISTSERVE.

I. This is a 300-level course because it builds on knowledge and information gained during and demonstrated by earning the Private and Commercial Pilot Certificates and the Instrument Pilot Rating. Additionally, the student will

develop Lesson Plans and be able to analyze performance deficiencies in pilot applicants.

III. Course Activities:

The course will be conducted by lecture, practical exercises, and the use of an occasional guest speaker.

IV. Course Prerequisite: None.

V. Registration Restriction: FAA Commercial Pilot Certificate with Instrument Rating or equivalent.

VI. Course Evaluation:

A. Grades will be A - F.

B. Evaluation will be based on objective testing, attendance, and successful completion of each assigned exercise.

C. Each instructor will explain specific grading policies and requirements at the beginning of the semester.

VII. Content Outline:

1.0 SAFETY
- 1.1 General Rates
- 1.2 Class Conduct
- 1.3 Building Exit

2.0 THE LEARNING PROCESS
- 2.1 Definition of Learning
- 2.2 Laws of Learning
- 2.3 How People Learn
- 2.4 Levels of Learning
- 2.5 Forgetting and Retention
- 2.6 Habit Formation
- 2.7 Obstacles to Learning
- 2.8 The Instructor's Role in Training

3.0 HUMAN BEHAVIOR
- 3.1 Control of Human Behavior
- 3.2 Human Needs
- 3.3 Defense Mechanisms
- 3.4 The Instructor's Role in Human Relations

4.0 EFFECTIVE COMMUNICATION

5.0 THE TEACHING PROCESS
- 5.1 Preparation

- 5.2 Presentation
- 5.3 Application
- 5.4 Review and Evaluation

6.0 TEACHING METHODS
- 6.1 Material Organization
- 6.2 Lecture Method
- 6.3 Guided Discussion Method
- 6.4 Demonstration-performance Method

7.0 THE INSTRUCTOR AS A CRITIC

8.0 EVALUATION
- 8.1 Oral Quizzing
- 8.2 Written Tests
- 8.3 Performance Tests

9.0 INSTRUCTIONAL AIDS

10.0 FLIGHT INSTRUCTOR RESPONSIBILITIES

11.0 TEACHING
- 11.1 Four Forces Acting on an Airplane in Flight
- 11.2 Principles of Lift
- 11.3 Flight Control Systems
- 11.4 Secondary Flight Controls
- 11.5 Three Axes of Rotation
- 11.6 Left Turning Tendency
- 11.7 Airplane Powerplant and Systems
- 11.8 Flight Instruments
- 11.9 Weight and Balance
- 11.10 Airplane Performance
  - 11.10.1 Take-off calculations
  - 11.10.2 Climb airspeeds
  - 11.10.3 Cruise performance
  - 11.10.4 Landing performance
  - 11.10.5 Other
- 11.11 Primary Navigation
  - 11.11.1 Types of navigation
  - 11.11.2 Visual Flight Rules (VFR) type charts
  - 11.11.3 Cartographics
  - 11.11.4 Basics of navigation
  - 11.11.5 Airspace considerations
- 11.12 The Flight Computer
  - 11.12.1 Calculator side
  - 11.12.2 Wind-face side
- 11.13 The National Airspace System
- 11.14 Radio Communication
- 11.15 Electronic Navigation
- 11.16 Basic Weather Theory
- 11.17 Problem Weather

11.17.1 Fronts
11.17.2 Turbulence
11.17.3 Fog
11.17.4 Icing
11.17.5 Thunderstorms

11.18 Gathering Weather Information
11.18.1 Surface Analysis Chart
11.18.2 Weather Depiction Chart
11 18.3 Low Level Significant Weather Prognostic Chart
11.18.4 Radar Summary Chart
11.18.5 Aviation weather reports
11.18.6 Aviation weather forecasts

11.19 Federal Aviation Regulations (FAR's)
11.19.1 Part 1 - Definitions and Abbreviations
11.19.2 Part 61 - Certification: Pilots and Flight Instructors
11.19.3 Part 91
11.19.4 Part 135
11.19.5 National Transportation Safety Board (NTSB) 830

11.20 Flight Planning Publications
11 20.1 Aeronautical Information Manual (AIM)
11.20.2 Advisory Circular (AC)
11.20.3 Airworthiness Directives (AD)
11 20.4 Notices to Airmen (NOTAM)
11.20.5 Airport/Facility Directory (A/F D)
11 20.6 Alaska Supplement

11.21 Medical Facts for Pilots

VIII. Instructional Goals:

Prepares students for the FAA Certified Flight Instructor Knowledge Test.

IX. Course Outcomes and Assessment Procedures:

Upon successful completion of this course, students will be able to:	**Assessment Procedures**
Apply applicable teaching techniques as a Flight Instructor.	Written assignments Oral discussions Performance tests
Describe the learning process associated with individuals being introduced to new topics and skills.	Written assignments Oral discussions Written exams
Plan and execute student Lesson Plans in an effective manner.	Written assignments Oral discussions Written exams
Present and discuss those topics required of a pilot flying in the National Airspace	Oral exams Oral discussions

System.	Performance tests
Analyze performance deficiencies in pilot applicants.	Oral exams Oral discussions Performance tests

X. Suggested Text:

Aviation Supplies & Academics, Inc. (latest edition). *Certified flight instructor test prep*. Newcastle, WA: Author.

Department of Transportation. (latest edition). *Aviation instructor's handbook* (Federal Aviation Administration). Washington, DC: U.S. Government Printing Office.

Kershner, W. K. (2002). *The flight instructor's manual.* Ames, IA: Blackwell.

XI. Bibliography:

Department of Transportation. (2007). *Aeronautical information manual* (Federal Aviation Administration). Washington, DC: U.S. Government Printing Office.

Flight Standards Service. (2006). *Flight instructor practical test standards: For airplane* (Federal Aviation Administration Order –S-8081-6C). Washington, DC: U.S. Government Printing Office.

Haney, R. W. (2007). *Flight instructor ground school training course outline*. Unpublished manuscript. University of Alaska Anchorage.

Haney, R. W. (1998). *Flight school policy and safety procedures handbook*. Unpublished manuscript. University of Alaska Anchorage.

Curriculum Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course or Program of Study

1a. School or College	1b. Division	1c. Department
AS CAS	AMSC Division of Math Science	Biological Sciences

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEU	5b. Contact Hours (Lecture + Lab)
BIOL	A365		3	(3+0)

6. Complete Course/Program Title
Astrobiology

Astrobiology
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action ☒ Course ☐ Program

☒ Add ☐ Prefix ☐ Course Number
☐ Change ☐ Credits ☐ Contact Hours
(mark appropriate boxes) ☐ Title ☐ Repeat Status
☐ Delete ☐ Grading Basis ☒ Cross-Listed/Stacked
☐ Course Description ☐ Course Prerequisites
☐ Test Score Prerequisites ☐ Co-requisites
☐ Other Restrictions ☐ Registration Restrictions
☐ Class ☐ Level
☐ College ☐ Major
☒ Other Capstone status.

9. Repeat Status No # of Repeats 0 Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Spring/2010 To: /9999

12. ☒ Cross Listed with ASTR A365

☐ Stacked with _____ Cross-Listed Coordination Signature

13. List any programs or college requirements that require this course

14. Coordinate with Affected Units: UAA Faculty ListServ, UAA Deans & Directors.
Department, School, or College

_____ Initiator Signature Date

15. ☒ General Education Requirement ☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☒ Integrative Capstone

16. Course Description
A comprehensive examination of the possibility of the existence of life (microbial and advanced) outside of the Earth, the probability of discovery of extraterrestrial life (methods of planet detection, chemical signatures of microbial life, and contact with advanced life), and the scientific and cultural implications of such a discovery. Includes the study of star and planet formation rates, habitability zones, origin of life, evolution, and formation of intelligence.

17a. Course Prerequisite(s) (list prefix and number)	17b. Test Score(s)	17c. Co-requisite(s) (concurrent enrollment required)
BIOL A115 and (PHYS A123 or PHYS A211)	n/a.	n/a.

17d. Other Restriction(s)	17e. Registration Restriction(s) (non-codable)
☐ College ☐ Major ☐ Class ☐ Level	Junior standing; completion of all GER Tier 1 courses.

18. ☒ Mark if course has fees

19. Justification for Action
New UAA GER Integrative Capstone course. The advanced approach to understanding of extraterrestrial life requires an integration of critical concepts of astrophysics, physics, geology, atmospheric science, origin of life, molecular biology, and evolutionary biology. Students will emerge with an understanding of how life originates and evolves, what conditions are necessary for life to exist elsewhere, how we may discover it, and what it would mean to humankind.

_____
Initiator (faculty only) Date

_____
Initiator (PRINT NAME)

____ Approved
____ Disapproved: _____
Department Chairperson Date

____ Approved
____ Disapproved: _____
Curriculum Committee Chairperson Date

____ Approved
____ Disapproved: _____
Dean/Director of School/College Date

____ Approved
____ Disapproved: _____
Undergraduate or Graduate Academic Board Chairperson Date

____ Approved
____ Disapproved: _____
Provost or Designee Date

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

I. Implementation Date: Spring 2010

II. Course Information

A.	**College:**	College of Arts and Sciences
B.	**Course Subject/Number:**	BIOL A365
C.	**Course Title:**	Astrobiology
D.	**Course Description:**	A comprehensive examination of the possibility of the existence of life (microbial and advanced) outside of the Earth, the probability of discovery of extraterrestrial life (methods of planet detection, chemical signatures of microbial life, and contact with advanced life), and the scientific and cultural implications of such a discovery. This includes the study of star and planet formation rates, habitability zones, origin of life, evolution, and formation of intelligence.
E.	**Credit Hours:**	3.0
F.	**Contact Hours:**	3 + 0
G.	**Grading Basis:**	A-F
H.	**Status of Course Relative to Degree Program:**	Elective capstone course for BA-Biological Sciences, BS-Biological Sciences majors, Biology minors, BS-Geology or BS-Natural Science majors.
I.	**Course Fees (Yes/No):**	Yes
J.	**Lab Fees (Yes/No):**	No
K.	**Coordination:**	UAA Faculty Listserv, UAA Deans and Directors
L.	**Crosslisting:**	ASTR A365
M.	**Prerequisites/Corequisite:**	Prerequisites: BIOL A115 and PHYS A123.
N.	**Registration Restrictions:**	Junior standing; completion of all GER Tier 1 courses (basic college-level skills) is required for GER Tier 3 credit.
O.	**Course Attributes:**	UAA GER Integrative Capstone

III. Course Activities:

This is primarily a lecture course; however it will use the visualization tools and immersive video environment of the planetarium. Students are required to read, research and synthesize information from the primary literature and other resources to cover a topic of their choice related to the likelihood of life on another planet, the chances of discovery of extraterrestrial life, or the impact that such a discovery would have on society. This research will be presented by the students to the class.

IV. Evaluation:

Course grading is A-F. The evaluation methods, while at the discretion of the faculty member teaching the course, may include written lecture exams, worksheets and other homework assignments, reading and interpreting selected primary literature and a research project with an associated paper in scientific format.

V. Course Level Justification:

Students are required to learn and integrate information from a variety of scientific disciplines as it relates to astrobiology, to read, understand, and apply ideas conveyed by primary scientific literature, to synthesize astrophysical, chemical, geological and biological knowledge and social considerations; and to apply course materials to this topic.

GER Integrative Capstone Justification:
Justifications for designating BIOL A365 Astrobiology as a GER Integrative Capstone course include its emphases on:

1. Knowledge Integration / Interrelationships and synergy among GER disciplines: Astrobiology's relationship to the other natural and social sciences is an overall theme of the course. This course focuses on the interfaces between physical sciences (astronomy, chemistry, physics, geology), biological sciences (molecular biology, origins of life, evolutionary biology), and the social sciences, particularly as they relate to the implications of the discovery of extraterrestrial life.

2. Effective communication skills: Student success demands effective communication through essay examinations, individual classroom presentations, brief reports (oral and written) on hot topics from the local media, and a final research paper.

3. Critical Thinking: Students will succeed in this class if they are able to integrate information across disciplines, and critically evaluate positions and the reliability and validity of data presented in lecture, texts, scientific, and popular viewpoints. Students' ability to critically evaluate diverse materials will be determined based on writing assignments, class presentations, and exams.

4. Information literacy: Students are expected to achieve and demonstrate computer and Internet skills for acquiring information relevant to current topics in astrobiology. This will involve both research in the primary scientific literature (via library and internet resources) and the collection of information from more 'public' sources such as TV, Web, popular press magazines and newspapers, and advocacy organizations. Students must show that they can critically and appropriately evaluate scientific content in 'public' sources based on knowledge gleaned from 'scientific' sources.

5. Quantitative Perspectives: A critical understanding of astrobiology requires that students grasp quantitative concepts such as how a star's mass affects the size and longevity of a habitability zone, and how cell size affects metabolic and reproductive rates. In addition, students must be able to read and interpret scientific graphs (quantitative data, graphically displayed), and to generate graphs showing the relationship between different properties (such as the temperature and luminosity of a star). Exams will specifically test on these skills.

6. Evolving realities of the 21st Century: The growing knowledge that understanding the possibility and probability of life on another planet is to understand how life originated on ours. It creates a special perspective on the uniqueness of life on Earth, and its fragility. This is particularly relevant in the context that humans are having large and potentially irreversible impacts on the habitability of the Earth for many forms of life, which has been a recent focus of scientific and political discussions.

VI. Course Outline

1.0 An Introduction to Life in the Universe
- 1.1 The Possibilities of Life Beyond Earth
- 1.2 The Scientific Context of the Search
- 1.3 The New Science of Astrobiology

2.0 The Habitability of the Earth
- 2.1 Geology and Life
- 2.2 Habitability
- 2.3 Climate Regulation and Change

3.0 The Nature of Life on Earth
- 3.1 Defining Life
- 3.2 Cells: The Basic Units of Life
- 3.3 Metabolism
- 3.4 DNA and Heritability

4.0 Origin and Evolution of Life on Earth
- 4.1 Searching for the Origin of Life
- 4.2 The Evolution of Life
- 4.3 Impacts and Extinctions

5.0 Life in the Solar System
- 5.1 The Inner Solar System
- 5.2 The Outer Solar System
- 5.3 Spacecraft and Exploration

6.0 Mars
- 6.1 Fantasies of Martian Civilization
- 6.2 A Modern Portrait of Mars
- 6.3 The Climate History of Mars
- 6.4 Searching for Life on Mars

7.0 The Jovian Moons
- 7.1 Life on the Galilean Moons
- 7.2 Life on Saturn and Beyond

8.0 The Nature and Evolution of Habitability
- 8.1 The Concept of a Habitable Zone
- 8.2 Venus and Mars: Examples in Potential Habitability
- 8.3 The Future of Life on Earth
- 8.4 Global Warming

9.0 Habitability Outside the Solar System
- 9.1 Extrasolar Planets
- 9.2 Stellar Classification
- 9.3 Rare Earth?

10.0 The Search for Extraterrestrial Intelligence
- 10.1 The Drake Equation
- 10.2 The Question of Intelligence
- 10.3 Searching for Intelligence

11.0 Interstellar Travel
- 11.1 The Challenge of Interstellar Travel
- 11.2 Building a Spaceship for Interstellar Travel
- 11.3 Fermi's Paradox

VII. Instructional Goals and Student Outcomes:

A. The instructor will:

The instructor will:

- Provide a basic description of the physical, chemical, and geological properties necessary for the origin and sustainability of life on Earth.
- Build on this conceptual framework to describe how other moon, planet and star systems have zones of habitability in which life can exist.
- Discuss the physical features of other worlds within our Solar System and beyond which may allow life to develop.
- Describe how life evolves in tandem with its changing environment. Provide detailed examples of how the physiological traits of organisms are uniquely linked to their habitat, and of how changes in that habitat may influence species diversity and abundance through impacts on physiological properties.
- Discuss the techniques used to search for extraterrestrial planets on which life could exist. Explore future missions and technologies that will search for the chemical signatures of simple life forms on these worlds.
- Discuss the role of intelligence in the evolution of life, and its implications for the likelihood of advanced extraterrestrial life forms capable of communicating with us.
- Examine the techniques used to search for advanced life in the Universe, and explore the scientific and cultural implications of such a discovery.
- Teach students how to evaluate and integrate information from a variety of different sources and perspectives.

B. Student Outcomes:

Students will be able to:	Assessment Method
Articulate in depth the processes of the origins and evolution of life in different ecosystems. Conceptually link the chemistry and physiology of living organisms with the physical and biological aspects of their environment.	Exams and written assignments
Critically integrate information read from scientific articles provided in lecture and textbook assignments, and apply this information to evaluate the scientific accuracy of popular press (TV, newspaper, magazine, web) reports related to astrobiology.	Exams, written assignments and in-class reports
Describe the likelihood of 'contact' with an advanced civilization, and discuss the scientific and cultural impacts of such a discovery.	In-class presentations, exams, and written assignments
Assess the long-term prospects for the habitability for life of the Earth. In particular, explore the nature of human impacts on ecosystems through in depth study of current topics such as global warming.	In-class presentations, exams, and written assignments.

VIII. Suggested Text(s):

Bennett, J. & Shostak, S. 2008. *Life in the Universe.* 2nd Ed. Pearson-Addison Wesley.

Prather, E., Offerdahl, E. and Slater, T.F. 2008. *Life in the Universe Activities Manual.* 2nd Ed. Pearson-Addison Wesley.

IX. Bibliography:

In addition to textbook assignments, an extensive reference list of current literature from scientific journals is utilized for this course and assigned and / or suggested to the students (all provided on blackboard); please contact Travis Rector, aftar, or 6-1242.

Barrow, J.D. et al. 2007. *Fitness of the Cosmos for Life: Biochemistry and Fine Tuning*. Cambridge University Press.

Clancy, P., Brack, A. & Horneck, G. 2005. *Looking for Life, Searching the Solar System.* Cambridge University Press.

Cohen, J. & Stewart, I. 2002. *What Does a Martian Look Like? The Science of Extraterrestrial Life*. Wiley Publishing.

Darling, D. 2002. *Life Everywhere: The Maverick Science of Astrobiology*. Basic Books.

Gilmour, I. & Sephton, M.A. 2004. *An Introduction to Astrobiology*. Cambridge University Press.

Grinspoon, D. 2003. *Lonely Planets: The Natural Philosophy of Alien Life.* Ecco Publishing.

Jastrow, R. & Rampino, J. 2008. *Origins of Life in the Universe*. Cambridge University Press.

Lunine, J. 2004. *Astrobiology: A Multi-Disciplinary Approach*. Pearson-Addison Wesley.

Pudritz, R., Higgs, P. & Stone, J. 2007. *Planetary Systems and the Origins of Life*. Cambridge University Press.

Schklovskii, I.S. & Sagan, C. 1966. *Intelligent Life in the Universe*. Holden-Day Publishing.

Ward, P. & Brownlee, D. 2003. *Rare Earth: Why Complex Life is Uncommon in the Universe*. Springer Publishing.

Curriculum Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course or Program of Study

1a. School or College	1b. Division	1c. Department
AS CAS	AMSC Division of Math Science	Physics and Astronomy

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEU	5b. Contact Hours (Lecture + Lab)
ASTR	A365		3	(3+0)

6. Complete Course/Program Title
Astrobiology

Astrobiology
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action ☒ Course ☐ Program

☒ Add ☐ Prefix ☐ Course Number
☐ Change ☐ Credits ☐ Contact Hours
(mark appropriate boxes) ☐ Title ☐ Repeat Status
☐ Delete ☐ Grading Basis ☒ Cross-Listed/Stacked
☐ Course Description ☐ Course Prerequisites
☐ Test Score Prerequisites ☐ Co-requisites
☐ Other Restrictions ☐ Registration Restrictions
☐ Class ☐ Level
☐ College ☐ Major
☒ Other Capstone status.

9. Repeat Status No # of Repeats 0 Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Spring/2010 To: /9999

12. ☒ Cross Listed with BIOL A365

☐ Stacked with _____ Cross-Listed Coordination Signature

13. List any programs or college requirements that require this course

14. Coordinate with Affected Units: UAA Faculty ListServ, UAA Deans & Directors.
Department, School, or College

_____ Initiator Signature Date

15. ☒ General Education Requirement ☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☒ Integrative Capstone

16. Course Description
A comprehensive examination of the possibility of the existence of life (microbial and advanced) outside of the Earth, the probability of discovery of extraterrestrial life (methods of planet detection, chemical signatures of microbial life, and contact with advanced life), and the scientific and cultural implications of such a discovery. Includes the study of star and planet formation rates, habitability zones, origin of life, evolution, and formation of intelligence.

17a. Course Prerequisite(s) (list prefix and number)	17b. Test Score(s)	17c. Co-requisite(s) (concurrent enrollment required)
BIOL A115 and (PHYS A123 or PHYS A211)	n/a.	n/a.

17d. Other Restriction(s)	17e. Registration Restriction(s) (non-codable)
☐ College ☐ Major ☐ Class ☐ Level	Junior standing; completion of all GER Tier 1 courses.

18. ☒ Mark if course has fees

19. Justification for Action
New UAA GER Integrative Capstone course. The advanced approach to understanding of extraterrestrial life requires an integration of critical concepts of astrophysics, physics, geology, atmospheric science, origin of life, molecular biology, and evolutionary biology. Students will emerge with an understanding of how life originates and evolves, what conditions are necessary for life to exist elsewhere, how we may discover it, and what it would mean to humankind.

_____
Initiator (faculty only) Date

_____
Initiator (PRINT NAME)

____ Approved
____ Disapproved: _____
Department Chairperson Date

____ Approved
____ Disapproved: _____
Curriculum Committee Chairperson Date

____ Approved
____ Disapproved: _____
Dean/Director of School/College Date

____ Approved
____ Disapproved: _____
Undergraduate or Graduate Academic Board Chairperson Date

____ Approved
____ Disapproved: _____
Provost or Designee Date

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

I. Implementation Date: Spring 2010

II. Course Information

A.	**College:**	College of Arts and Sciences
B.	**Course Subject/Number:**	ASTR A365
C.	**Course Title:**	Astrobiology
D.	**Course Description:**	A comprehensive examination of the possibility of the existence of life (microbial and advanced) outside of the Earth, the probability of discovery of extraterrestrial life (methods of planet detection, chemical signatures of microbial life, and contact with advanced life), and the scientific and cultural implications of such a discovery. This includes the study of star and planet formation rates, habitability zones, origin of life, evolution, and formation of intelligence.
E.	**Credit Hours:**	3.0
F.	**Contact Hours:**	3 + 0
G.	**Grading Basis:**	A-F
H.	**Status of Course Relative to Degree Program:**	Elective capstone course for BA-Biological Sciences, BS-Biological Sciences majors, Biology minors, BS-Geology or BS-Natural Science majors.
I.	**Course Fees (Yes/No):**	Yes
J.	**Lab Fees (Yes/No):**	No
K.	**Coordination:**	UAA Faculty Listserv, UAA Deans and Directors
L.	**Crosslisting:**	BIOL A365
M.	**Prerequisites/Corequisite:**	Prerequisites: BIOL A115 and (PHYS A123 or A211).
N.	**Registration Restrictions:**	Junior standing; completion of all GER Tier 1 courses (basic college-level skills) is required for GER Tier 3 credit.
O.	**Course Attributes:**	UAA GER Integrative Capstone

III. Course Activities:

This is primarily a lecture course; however it will use the visualization tools and immersive video environment of the planetarium. Students are required to read, research and synthesize information from the primary literature and other resources to cover a topic of their choice related to the likelihood of life on another planet, the chances of discovery of extraterrestrial life, or the impact that such a discovery would have on society. This research will be presented by the students to the class.

IV. Evaluation:

Course grading is A-F. The evaluation methods, while at the discretion of the faculty member teaching the course, may include written lecture exams, worksheets and other homework assignments, reading and interpreting selected primary literature and a research project with an associated paper in scientific format.

V. Course Level Justification:

Students are required to learn and integrate information from a variety of scientific disciplines as it relates to astrobiology, to read, understand, and apply ideas conveyed by primary scientific literature, to synthesize astrophysical, chemical, geological and biological knowledge and social considerations; and to apply course materials to this topic.

GER Integrative Capstone Justification:
Justifications for designating ASTR A365 Astrobiology as a GER Integrative Capstone course include its emphases on:

1. Knowledge Integration / Interrelationships and synergy among GER disciplines: Astrobiology's relationship to the other natural and social sciences is an overall theme of the course. This course focuses on the interfaces between physical sciences (astronomy, chemistry, physics, geology), biological sciences (molecular biology, origins of life, evolutionary biology), and the social sciences, particularly as they relate to the implications of the discovery of extraterrestrial life.

2. Effective communication skills: Student success demands effective communication through essay examinations, individual classroom presentations, brief reports (oral and written) on hot topics from the local media, and a final research paper.

3. Critical Thinking: Students will succeed in this class if they are able to integrate information across disciplines, and critically evaluate positions and the reliability and validity of data presented in lecture, texts, scientific, and popular viewpoints. Students' ability to critically evaluate diverse materials will be determined based on writing assignments, class presentations, and exams.

4. Information literacy: Students are expected to achieve and demonstrate computer and Internet skills for acquiring information relevant to current topics in astrobiology. This will involve both research in the primary scientific literature (via library and internet resources) and the collection of information from more 'public' sources such as TV, Web, popular press magazines and newspapers, and advocacy organizations. Students must show that they can critically and appropriately evaluate scientific content in 'public' sources based on knowledge gleaned from 'scientific' sources.

5. Quantitative Perspectives: A critical understanding of astrobiology requires that students grasp quantitative concepts such as how a star's mass affects the size and longevity of a habitability zone, and how cell size affects metabolic and reproductive rates. In addition, students must be able to read and interpret scientific graphs (quantitative data, graphically displayed), and to generate graphs showing the relationship between different properties (such as the temperature and luminosity of a star). Exams will specifically test on these skills.

6. Evolving realities of the 21st Century: The growing knowledge that understanding the possibility and probability of life on another planet is to understand how life originated on ours. It creates a special perspective on the uniqueness of life on Earth, and its fragility. This is particularly relevant in the context that humans are having large and potentially irreversible impacts on the habitability of the Earth for many forms of life, which has been a recent focus of scientific and political discussions.

VI. Course Outline

1.0 An Introduction to Life in the Universe
- 1.1 The Possibilities of Life Beyond Earth
- 1.2 The Scientific Context of the Search
- 1.3 The New Science of Astrobiology

2.0 The Habitability of the Earth
- 2.1 Geology and Life
- 2.2 Habitability
- 2.3 Climate Regulation and Change

3.0 The Nature of Life on Earth
- 3.1 Defining Life
- 3.2 Cells: The Basic Units of Life
- 3.3 Metabolism
- 3.4 DNA and Heritability

4.0 Origin and Evolution of Life on Earth
- 4.1 Searching for the Origin of Life
- 4.2 The Evolution of Life
- 4.3 Impacts and Extinctions

5.0 Life in the Solar System
- 5.1 The Inner Solar System
- 5.2 The Outer Solar System
- 5.3 Spacecraft and Exploration

6.0 Mars
- 6.1 Fantasies of Martian Civilization
- 6.2 A Modern Portrait of Mars
- 6.3 The Climate History of Mars
- 6.4 Searching for Life on Mars

7.0 The Jovian Moons
- 7.1 Life on the Galilean Moons
- 7.2 Life on Saturn and Beyond

8.0 The Nature and Evolution of Habitability
- 8.1 The Concept of a Habitable Zone
- 8.2 Venus and Mars: Examples in Potential Habitability
- 8.3 The Future of Life on Earth
- 8.4 Global Warming

9.0 Habitability Outside the Solar System
- 9.1 Extrasolar Planets
- 9.2 Stellar Classification
- 9.3 Rare Earth?

10.0 The Search for Extraterrestrial Intelligence
- 10.1 The Drake Equation
- 10.2 The Question of Intelligence
- 10.3 Searching for Intelligence

11.0 Interstellar Travel
- 11.1 The Challenge of Interstellar Travel
- 11.2 Building a Spaceship for Interstellar Travel
- 11.3 Fermi's Paradox

VII. Instructional Goals and Student Outcomes:

A. The instructor will:

The instructor will:

- Provide a basic description of the physical, chemical, and geological properties necessary for the origin and sustainability of life on Earth.
- Build on this conceptual framework to describe how other moon, planet and star systems have zones of habitability in which life can exist.
- Discuss the physical features of other worlds within our Solar System and beyond which may allow life to develop.
- Describe how life evolves in tandem with its changing environment. Provide detailed examples of how the physiological traits of organisms are uniquely linked to their habitat, and of how changes in that habitat may influence species diversity and abundance through impacts on physiological properties.
- Discuss the techniques used to search for extraterrestrial planets on which life could exist. Explore future missions and technologies that will search for the chemical signatures of simple life forms on these worlds.
- Discuss the role of intelligence in the evolution of life, and its implications for the likelihood of advanced extraterrestrial life forms capable of communicating with us.
- Examine the techniques used to search for advanced life in the Universe, and explore the scientific and cultural implications of such a discovery.
- Teach students how to evaluate and integrate information from a variety of different sources and perspectives.

B. Student Outcomes:

Students will be able to:	Assessment Method
Articulate in depth the processes of the origins and evolution of life in different ecosystems. Conceptually link the chemistry and physiology of living organisms with the physical and biological aspects of their environment.	Exams and written assignments
Critically integrate information read from scientific articles provided in lecture and textbook assignments, and apply this information to evaluate the scientific accuracy of popular press (TV, newspaper, magazine, web) reports related to astrobiology.	Exams, written assignments and in-class reports
Describe the likelihood of 'contact' with an advanced civilization, and discuss the scientific and cultural impacts of such a discovery.	In-class presentations, exams, and written assignments
Assess the long-term prospects for the habitability for life of the Earth. In particular, explore the nature of human impacts on ecosystems through in depth study of current topics such as global warming.	In-class presentations, exams, and written assignments.

VIII. Suggested Text(s):

Bennett, J. & Shostak, S. 2008. *Life in the Universe.* 2nd Ed. Pearson-Addison Wesley.

Prather, E., Offerdahl, E. and Slater, T.F. 2008. *Life in the Universe Activities Manual.* 2nd Ed. Pearson-Addison Wesley.

IX. Bibliography:

In addition to textbook assignments, an extensive reference list of current literature from scientific journals is utilized for this course and assigned and / or suggested to the students (all provided on blackboard); please contact Travis Rector, aftar, or 6-1242.

Barrow, J.D. et al. 2007. *Fitness of the Cosmos for Life: Biochemistry and Fine Tuning*. Cambridge University Press.

Clancy, P., Brack, A. & Horneck, G. 2005. *Looking for Life, Searching the Solar System.* Cambridge University Press.

Cohen, J. & Stewart, I. 2002. *What Does a Martian Look Like? The Science of Extraterrestrial Life*. Wiley Publishing.

Darling, D. 2002. *Life Everywhere: The Maverick Science of Astrobiology*. Basic Books.

Gilmour, I. & Sephton, M.A. 2004. *An Introduction to Astrobiology*. Cambridge University Press.

Grinspoon, D. 2003. *Lonely Planets: The Natural Philosophy of Alien Life.* Ecco Publishing.

Jastrow, R. & Rampino, J. 2008. *Origins of Life in the Universe*. Cambridge University Press.

Lunine, J. 2004. *Astrobiology: A Multi-Disciplinary Approach*. Pearson-Addison Wesley.

Pudritz, R., Higgs, P. & Stone, J. 2007. *Planetary Systems and the Origins of Life*. Cambridge University Press.

Schklovskii, I.S. & Sagan, C. 1966. *Intelligent Life in the Universe*. Holden-Day Publishing.

Ward, P. & Brownlee, D. 2003. *Rare Earth: Why Complex Life is Uncommon in the Universe*. Springer Publishing.

2010-2011 UAA CATALOG PRODUCTION CALENDAR

Effective 9-1-09

Undergraduate Courses and Programs

The following deadlines are for undergraduate program proposals requiring BOR and NWCCU approval. Meeting these deadlines does not guarantee all approvals can be obtained in time for inclusion in the next catalog. Proposals can be delayed in the review process if questions arise or other issues come into play. Consult with OAA before starting the curriculum approval process to aid in planning a strategy for successful approval of your program.

1/19/2010	9:00 a.m. deadline for all *undergraduate* level CARs and PARs for program proposals requiring BOR and NWCCU approval due to Governance.
1/22/2010	First reading UAB for all *undergraduate* level CARs and PARs for program proposals requiring BOR and NWCCU approval
1/29/2010	Second reading UAB for all *undergraduate* level CARs and PARs for program proposals requiring BOR and NWCCU approval
2/1/2010	5:00 p.m. deadline for revised curriculum to Governance in order to be included on Faculty Senate agenda for meeting on February 5.
2/5/2010	Faculty Senate reviews curriculum actions. After approval by the Faculty Senate, OAA will work with programs needing BOR approval to finalize the full prospectus for Provost approval and to be forwarded to SAC for review. Statewide administration decides whether or not to place proposals on the BOR agenda.
2/22/2010	Full prospectus for new programs and major modifications due to SAC for review and approval to place on Regents' April agenda.
4/15-16/2010	The BOR reviews and acts on curriculum proposals. Following approval by the BOR, the OAA submits prospectus to NWCCU for approval. NWCCU approvals can take up to 90 days after submission.

These deadlines are for undergraduate program proposals requiring Faculty Senate approval only:

4/5/2010	9:00 a.m. deadline for all *undergraduate* level CARs and PARs for other catalog materials that require Faculty Senate approval to be submitted to the Governance Office. Note that this leaves only two meetings for review. Materials submitted are placed in a queue and are considered when the academic board time permits.
4/9/2010	First reading UAB for CARs and PARs requiring Faculty Senate approval
4/23/2010	Second reading UAB for CARs and PARs requiring Faculty Senate approval
5/3/2010	5:00 p.m. deadline for revised curriculum to Governance in order to be included on Faculty Senate agenda for meeting on May 7
5/7/2010	Faculty Senate reviews curriculum actions. Faculty Senate-approved actions are reviewed for approval by the OAA and/or the Chancellor as necessary. Following OAA approval, the program is forwarded to the Registrar's office for inclusion in the next UAA Catalog.

Graduate Courses and Programs

The following deadlines are for graduate program proposals requiring BOR and NWCCU approval. Meeting these deadlines does not guarantee all approvals can be obtained in time for inclusion in the next catalog. Proposals can be delayed in the review process if questions arise or other issues come into play. Consult with OAA before starting the curriculum approval process to aid in planning a strategy for successful approval of your program.

1/4/2010	9:00 a.m. deadline for all *graduate* level CARs and PARs for program proposals requiring BOR and NWCCU approval due to Governance.
1/8/2010	First reading GAB for all *graduate* level CARs and PARs for program proposals requiring BOR and NWCCU approval
1/22/2010	Second reading GAB for all *graduate* level CARs and PARs for program proposals requiring BOR and NWCCU approval
2/1/2010	5:00 p.m. deadline for revised curriculum to Governance in order to be included on Faculty Senate agenda for meeting on February 5.
2/5/2010	Faculty Senate reviews curriculum actions. After approval by the Faculty Senate, OAA will work with programs needing BOR approval to finalize the full prospectus for Provost approval and to be forwarded to SAC for review. Statewide administration decides whether or not to place proposals on the BOR agenda.
2/22/2010	Full prospectus for new programs and major modifications due to SAC for review and approval to place on Regents' April agenda.
4/15-16/2010	The BOR reviews and acts on curriculum proposals. Following approval by the BOR, the OAA submits prospectus to NWCCU for approval. NWCCU approvals can take up to 90 days after submission.

These deadlines are for graduate program proposals requiring Faculty Senate approval only:

4/5/2010	9:00 a.m. deadline for all *graduate* level CARs and PARs for other catalog materials that require Faculty Senate approval to be submitted to the Governance Office. Note: This leaves only two meetings for review. Materials submitted are placed in a queue and are considered when the academic board time permits.
4/9/2010	First reading GAB for CARs and PARs requiring Faculty Senate approval
4/23/2010	Second reading GAB for CARs and PARs requiring Faculty Senate approval
5/3/2010	5:00 p.m. deadline for revised curriculum to Governance in order to be included on Faculty Senate agenda for meeting on May 7
5/7/2010	Faculty Senate reviews curriculum actions. Faculty Senate-approved actions are reviewed for approval by the OAA and/or the Chancellor as necessary. Following OAA approval, the program is forwarded to the Registrar's office for inclusion in the next UAA Catalog.

Catalog

These deadlines are for catalog copy distributed by the Publications & Scheduling office. Hard copies are provided for updating program introductions and faculty lists. Changes to program requirements must be reviewed by the academic boards.

4/5/2010	Catalog copy provided to colleges and schools for final review and update
4/23/2010	Final catalog copy changes due back to Publications & Scheduling, Office of the Registrar
7/7/2010	UAA Catalog online
8/10/2010	UAA Catalog delivery

Key

BOR: Board of Regents
CAR: Curriculum Action Request
GAB: Graduate Academic Board
NWCCU: Northwest Commission on Colleges and Universities
OAA: Office of Academic Affairs
PAR: Program/Prefix Action Request
SAC: Statewide Academic Council
UAB: Undergraduate Academic Board

Contact information:
Governance – aygov@uaa.alaska.edu 786-1945
Publications & Scheduling – aypublications@uaa.alaska.edu
Courses – Linda anlkd@uaa.alaska.edu 786-1555
Programs – Sarah anseh@uaa.alaska.edu 786-1209
Office of Academic Affairs – ayoaa@uaa.alaska.edu
Academic Project Specialist 786-1054

Resource links:
www.uaa.alaska.edu/governance
www.uaa.alaska.edu/governance/upload/Curr_handbook_042809.doc
www.uaa.alaska.edu/records/faculty_resources/index.cfm