Undergraduate Academic Board

Audio: 786-6755 | ID: 46450 | Agenda

August 28, 2015
2:00-5:00pm
ADM 204

I. Roll

() Sandy Pence (FS)
() Utpal Dutta (FS)
() Cheryl Smith (FS)
() Alberta Harder (CAS)
( ) Barbara Harville (CAS)
( ) Vacant (CAS)
( ) Vacant (CBPP)
( ) Travis Hedwig (COH)
( ) Yvonne Chase (COH)
() Ginger Blackmon (COE)
() Carrie King (CTC, CHAIR)
() Jeff Hoffman (COENG)
() Robin Hanson (LIB)
() Rick Adams (KPC)
() Vacant (Mat-su)
() Jared Griffin (Kod)
() Christina Stuive (ADV)

Ex-Officio Members
() Susan Kalina
() Lora Volden
() Scheduling and Publications

II. Approval of the Agenda (pg. 1-3)

III. Approval of Meeting Summary (pg. 4-5)

IV. Administrative Report
- **A. Vice Provost for Undergraduate Academic Affairs Susan Kalina**
- **B. University Registrar Lora Volden**

V. Chair's Report
- **A. UAB Chair, Carrie King**
- **B. GERC Chair, Sandy Pence**

VI. Program/Course Action Request- Second Readings

VII. Program/Course Action Request- First Readings

Add	AKNS A190	Selected Topics: Alaska Native Cultural Skills (pg. 6-9)
Chg	MATH A054	Prealgebra (pg. 10-13)
Chg	MATH A054A	Prealgebra A (pg. 14-16)
Chg	MATH A054B	Prealgebra B (pg. 17-19)
Chg	MATH A054C	Prealgebra C (pg. 20-22)
Chg	MATH A055	Elementary Algebra (pg. 23-26)
Chg	MATH A055A	Elementary Algebra A (pg. 27-29)

Chg	MATH A055B	Elementary Algebra B (pg. 30-32)
Chg	MATH A055C	Elementary Algebra C (pg. 33-35)
Add	SOC A250	Guns in American Society (pg. 36-41)
Chg	GEOL A321	Mineralogy (pg. 42-46)
Chg	GEOL A360	Geochemistry (pg. 47-52)
Add	GEOL A361	Earth Resources and Society (GER) (pg. 53-59)
Chg	GEOL A431	Stratigraphy and Sed Petrology (pg. 60-64)
Add	GEOL A436	Survey of Petroleum Geology (Stacked w/ GEOL A636)(pg. 65-74)
Add	GEOL A437	Dep Systems and Dynamic Strat (Stacked w/ GEOL A637)(pg. 75-86)
Add	GEOL A438	Advanced Sed Petrology (Stacked with GEOL A638) (pg. 87-96)
Chg	GEOL A440	Hydrogeology (Stacked with GEOL A640)(pg. 97-107)
Add	GEOL A445	Geothermal Energy (Stacked with GEOL A645) (pg. 108-119)
Add	GEOL A457	Geology of Alaska (Stacked with GEOL A657)(pg. 120-127)
Dlt		Minor, Geological Sciences (pg. 128)
Chg		BS, Geological Sciences (pg. 129-137)
Chg	MA A140	Healthcare Documentation (pg. 138-143)
Chg		AAS, Medical Assisting (pg. 144-152)
Del	HUMS A124	Introduction to the Physiology and Pharmacology of Substance Abuse (pg. 153)
Del	HUMS A226	Intervention Continuum in Substance Abuse Counseling (pg. 154)
Del	HUMS A424	Advanced Counseling for Human Service Professionals (pg. 155)
Del	HUMS A434	Group Facilitation for Human Service Professionals (pg. 156)
Chg	HUMS A495	Human Services Practicum III (pg. 157-162)
Chg		OEC, Conflict Resolution (pg. 163-166)
Chg	RADT A151	Radiographic Physics (pg. 167-171)
Chg	RADT A161	Fundamentals of Medical Imaging I (pg. 172-176)

Chg	RADT A171	Fundamentals of Medical Imaging II (pg. 177-181)
Chg	RADT A251	Radiobiology and Protection (pg. 182-186)
Chg	RADT A295A	Radiography Practicum IV (pg. 187-190)
Chg	RADT A295B	Radiography Practicum V (pg. 191-194)
Chg		AAS, Radiologic Technology (pg. 195-203)

VIII. Old Business

a. Prerequisites for PRPE A108 Memo (pg. 204)

IX. New Business

a. WELD A190 Repeatable Status (pg. 205)
b. Updates to Early Childhood Associate Program Catalog Copy (pg. 206-207)
c. Update on GER Alignment Process – Dan Kline, GER Faculty Fellow
d. UAB Goals for 2015-2016

X. Informational Items and Adjournment:

i.

Undergraduate Academic Board

Audio: 786-6755 | ID: 83249 | Summary

April 24, 2015
2:00-5:00pm
ADM 204

I. Roll

(x) Alberta Harder (FS)
(X) Utpal Dutta (FS)
(X) Francisco Miranda (Chair)
(X) Barbara Harville (CAS)
( ) Vacant (CAS)
( ) Vacant (CAS)
( ) Vacant (CBPP)
( ) Vacant (COH)
( ) Vacant (COH)
(X) Irasema Ortega (COE)
(X) Carrie King (CTC)
() Jeff Hoffman (COENG)
(X) Kevin Keating (LIB)
(E) Rick Adams (KPC)
(X) Sheri Denison (Mat-su)
() Jared Griffin (Kod)
() Christina Stuive (ADV)

Ex-Officio Members

(X) Susan Kalina
(X) Lora Volden
(X) Scheduling and Publications

II. Approval of the Agenda (pg. 1)
Approved

III. Approval of Meeting Summary (pg. 2-6)
Approved

IV. Administrative Report

A. Vice Provost for Undergraduate Academic Affairs Susan Kalina
Thank you to all for their service this year. Curriculum committees are important – this is what the faculty have the majority say over and it is the foundation of shared governance.

B. University Registrar Lora Volden
CIM is now live online and will be used in the fall.

V. Chair's Report

A. UAB Chair- Francisco Miranda
Approved both JPC A204 and JPC A492
Sandy Pence was elected chair for the 2015-2016 year

B. GERC

Program/Course Action Request- Second Readings

Add AKNS A190 Selected Topics: Alaska Native Cultural Skills (1-3 cr)(1-3+0)(pg. 7-10)
Faculty initiator not present, will come back to UAB in the fall

Chg JPC A204 Media Literacy (GER)(3 cr)(3+0)(pg. 11-14)
Accepted for second reading

Chg JPC A492 JPC Capstone Seminar (GER)(3 cr)(3+0)(pg. 15-22)
Accepted for second reading

Add BA A485 International Business Applications (3 cr)(3+0)(pg. 24-27)
Accepted for second reading

Add BA A486 Field Studies in International Business (1-3 cr)((1-3+0)(pg. 28-31)
Accepted for second reading

Chg Bachelor of Science, Civil Engineering (pg. 32-44)
Accepted for second reading

Program/Course Action Request- First Readings

VII. Old Business

VIII. New Business

i. Elect 2015-2016 UAB Chair
Carrie King will serve as the Undergraduate Academic Board 2015-2016 chair

VIII. Informational Items and Adjournment:

i. Minor Catalog Change for BS/BA Major Requirements for Psychology 15-16 Catalog (pg. 45)
Waive first reading, approve for second

ii. Prerequisites for PRPE A108 Memo (pg. 46)
Accepted for first reading, will come back to UAB in the fall

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

1a. School or College	1b. Division	1c. Department
AS CAS	AHUM Division of Humanities	AKNS

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
AKNS	190		1-3	(1-3+0)

6. Complete Course Title
Selected Topics: Alaska Native Cultural Skills
AK Native Cult. Skills
Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions
- ☐ General Education Requirement

9. Repeat Status Yes # of Repeats Max Credits 9

10. Grading Basis ☐ A-F ☒ P/NP ☐ NG

11. Implementation Date semester/year
From: Summer/2015 To: /

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

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. AKNS Minor	10/2/14	Maria Williams
2.		
3.		

Initiator Name (typed): April Counceller Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 12/18/2014
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 12/18/2014

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Selected topics course. Focuses on an applied traditional Alaska Native skill. Covers historical and modern practices, as well as traditional knowledge and mentorship learning of Alaska Native practices, such as arts, technologies, or culinary techniques. Special Note: Subtitle varies. May be repeated for up to 9 credits with different subtitles.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
none

16b. Co-requisite(s) *(concurrent enrollment required)*
none

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*
none

17. ☒ Mark if course has fees varies

18. ☒ Mark if course is a selected topic course

19. Justification for Action
Provides opportunity for specific study of traditional Alaska Native skills and techniques.

Initiator (faculty only) Date
April G.L. Counceller
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chair Date

☐ Approved
☐ Disapproved
College/School Curriculum Committee Chair Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chair Date

☐ Approved
☐ Disapproved
Provost or Designee Date

COURSE CONTENT GUIDE
University of Alaska Anchorage – Kodiak College
Alaska Native Studies: AKNS A190: Selected Topics: Alaska Native Cultural Skills

I. **Initiation Date** Summer 2015

II. **Course Information**

A. College:	College of Arts and Sciences
B. Course Title:	Selected Topics: Alaska Native Cultural Skills
C. Course Subject/Number:	AKNS A190
D. Credit Hours:	1.0-3.0 Credits
E. Contact Time:	1+0 Contact Time per credit
F. Grading Information:	P/NP
G. Course Description:	Selected topics course. Focuses on an applied traditional Alaska Native skill. Covers historical and modern practices, as well as traditional knowledge and mentorship learning of Alaska Native practices, such as arts, technologies, or culinary techniques. Special Note: Subtitle varies. May be repeated for up to 9 credits with different subtitles.
H. Course Fees:	None.
I. Coordination:	Faculty List Serve, Deans and Directors, Anchorage and extended campuses.
J. Registration Restrictions:	None.

III. **Course Activities**

This class incorporates small-group demonstrations, lectures, and hands-on activities.

IV. **Course Evaluation**

Grading basis is Pass/No Pass. Grades will be based on these criteria:

A. Attendance and participation in class
B. Individual or group projects
C. Class discussions

V. **Course Level Justification**

This class is appropriate at the 100-level because it provides an introductory-level orientation to a specific topic area.

VI. **Instructional Goals and Student Learning Outcomes**

A. Instructional Goals. **The instructor will:**
1. Engage students through presentation, demonstration, and activity formats, bringing the subject matter to a level within their comprehension.
2. Empower students to participate in class activities, modifying content delivery to various learning preferences as needed.
3. Guide students through hands-on activities, ensuring adequate practice in applying course concepts.
4. Provide interaction with guest presenters and culture bearers with expertise in traditional Alaska Native skills and traditions,

B. Student Learning Outcomes. **Students will be able to:**	**Graded Assessment Method**
1. Describe and compare techniques and methods used in the past and today for traditional skills, including means of passing down traditional knowledge.	In-class discussions, activities, class project(s).
2. Apply course content to an individual or group project, exhibiting proficiency in the special topic area.	Individual, class project(s).
3. List materials or ingredients, tools, and other items needed for performing the traditional skill.	Class discussions, project(s)

VII. **Possible Course Topics (*not a limited list*)**

1. Mask Making: Ethnographic and Modern
2. Alaska Native Headdress Design and Construction
3. Traditional Plant Medicines
4. Trapping & Trap Making
5. Skin Sewing
6. Native Foods Preservation and Preparation
7. Bow making
8. Storytelling
9. Basket making: from collecting to completion
10. Weather lore and outdoor survival

VIII. **Sample Course Outline**: Alaska Native Traditional Plant Medicines

1. Information about medicinal plant use prehistorically, in the historic past, and today among Alaska Native groups;
2. Summary of available information resources (print, online, human);

3. Identification methods and local plant identification training;
4. Ethical/responsible plant collecting;
5. Plant drying and preservation for varied uses;
6. Applied project(s): developing medicinal products from local plants;
7. Traditional plant knowledge: comparing traditional mentorship and academic resources.

IX. Suggested Texts

*Garibaldi, A. (1999). *Medicinal Flora of the Alaska Natives*. Anchorage, AK: University of Alaska Anchorage Alaska Natural Heritage Program.

Jones, A. (2010). *Plants That We Eat: Nauriat Niginaqutat*. Fairbanks, AK: University of Alaska Press.

Russell, P. (2011). *Nanwalek and Port Graham Alutiiq Plantlore*. Fairbanks, AK: University of Alaska Fairbanks Center for Cross-Cultural Studies.

X. Bibliography

*Campbell, D., Charles, W., & Ramoth-Sampson, R. (2002). *What the Elders Have Taught Us: Alaska Native Ways*. Portland, OR: Alaska Northwest Books.

Crowell, A., Worl, R., Ongtooguk, P., & Biddison, D. (Eds.). (2010). *Living our Cultures, Sharing our Heritage: The First Peoples of Alaska*. Washington, DC: Smithsonian Books.

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

1a. School or College	1b. Division	1c. Department
CT CTC	APRS Division of Preparatory Study	College Preparatory & Developmental Studies, Math

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
MATH	A054		3 cr.	(3+0)

6. Complete Course Title
Prealgebra

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level ☐ College ☐ Major
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions
- ☐ General Education Requirement
- ☒ Other CCG and Catalog Copy (please specify)

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2015 To: /9999

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

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. ATP A100	1/21/15	Rocky Capozzi
2. CIOS A116	1/21/15	Darlene Gill
3.		

Initiator Name (typed): Thomas Harman Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 1/21/15
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 1/21/15

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Topics include operations and applications of whole numbers, integers, fractions, decimals, ratios and proportions, percents, geometry and measures, evaluation of algebraic expressions and applications.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*

16b. Co-requisite(s) *(concurrent enrollment required)*

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*
An approved UAA placement test is required.

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
BOR resolution to unify course descriptions for developmental courses.

Initiator (faculty only) Date
Thomas Harman
Initiator (TYPE NAME)

☐ Approved ☐ Disapproved Department Chair Date

☐ Approved ☐ Disapproved College/School Curriculum Committee Chair Date

☐ Approved ☐ Disapproved Dean/Director of School/College Date

☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chair Date

☐ Approved ☐ Disapproved Provost or Designee Date

University of Alaska Anchorage
Community and Technical College
Course Content Guide

I. Date of Initiation: January 2015

II. Curriculum Action Request

A. College:	Community and Technical College
B. Course Prefix:	MATH
C. Course Number:	A054
D. Number of Credits:	3
E. Contact Hours:	3+0 (135 hours of total student engagement)
F. Course Title:	Prealgebra
G. Grading Basis:	A-F
H. Implementation Date:	Fall 2015
I. Cross-listed/Stacked:	N/A
J. Course Description:	Topics include operations and applications of whole numbers, integers, fractions, decimals, ratios and proportions, percents, geometry and measures, evaluation of algebraic expressions and applications.
K. Course Prerequisites:	N/A
L. Course Co-requisites:	N/A
M. Other Restrictions:	N/A
N. Registration Restrictions:	An approved UAA placement test is required.
O. Course Fees:	Yes

III. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will:

1. Explain how to manipulate whole numbers, integers, fractions and decimals.
2. Define exponents and radicals.
3. Introduce tables, pictographs, bar graphs and line graphs, means, medians and modes.
4. Demonstrate how to compute ratios, proportions and percentages, and solve simple interest problems.
5. Demonstrate elementary geometry concepts (area, perimeter and volume calculations), the Pythagorean Theorem, and similar triangles.
6. Introduce algebraic expressions and equations

B. Student Learning Outcomes. Students will be able to:

1. Understand and manipulate integers, decimals and fractions
2. Understand and apply graphical and proportional data
3. Calculate perimeters, areas and volumes of basic geometric shapes
4. Simplify and evaluate basic algebraic expressions and equations

IV. Guidelines for evaluation

Assessment tools for all SLOs consist of: homework assignments, quizzes, tests, and a midterm examination. A comprehensive final exam will be given.

V. Course Level Justification

The course prepares students for Beginning Algebra and improves basic quantitative skills.

VI. Topical Course Outline

1.0 Basic Arithmetic
- 1.1 Arithmetic on Whole Numbers
- 1.2 Arithmetic on Integers
- 1.3 Order of Operations
- 1.4 Factors and Multiples
- 1.5 Simplifying Fractions
- 1.6 Multiplying and Dividing Fractions
- 1.7 Adding and Subtracting Fractions
- 1.8 Converting Mixed Numbers to Fractions
- 1.9 Converting Between Fractions and Decimals
- 1.10 Decimal Arithmetic
- 1.11 Order of Real Numbers and the Number Line
- 1.12 Rounding and Estimation

2.0 Exponents and Radicals
- 2.1 Integer Exponents
- 2.2 Scientific Notation
- 2.3 Radicals
- 2.4 Compound Interest (optional)

3.0 Data
- 3.1 Reading and Constructing Tables
- 3.2 Pictographs, Bar Graphs, and Line Graphs
- 3.3 Measures of Central Tendency

4.0 Arithmetic Applications
- 4.1 Ratios
- 4.2 Rates and Unit Prices
- 4.3 Proportions
- 4.4 Unit Conversions
- 4.5 Percent
- 4.6 Application of Percent
- 4.7 Simple Interest

5.0 Geometry Applications
- 5.1 Calculating Perimeter
- 5.2 Calculating Area
- 5.3 Calculating Volume
- 5.4 The Pythagorean Theorem
- 5.5 Similar Triangles

6.0 Algebraic Concepts
- 6.1 Algebraic Expressions

6.2 Arithmetic on Polynomials
6.3 Solving Algebraic Equations with Integers
6.4 Solving Algebraic Equations with Decimals
6.5 Solving Algebraic Equations with Fractions
6.6 Graphing Algebraic Equations

VI. Suggested Texts

Bittinger, M., Ellenbogen, D.,& Johnson, B. (2012). *Prealgebra* (6th ed.). Addison Wesley.

Lontz, Barbara (2014). *Concepts of numbers for arithmetic and preAlgebra* (4th ed.). Pearson.

McKeague, C.,& Pawlik, K. (2014), *Prealgebra.* XYZ Textbooks.

VII. Bibliography

Akst, G.,& Bragg S. (2012). *Basic college mathematics through applications*. (5th ed.). Addison Wesley.

Aufmann R., Barker, V., & Lockwood, J. (2009). *Prealgebra*, (5^{th} ed.). Houghton Mifflin.

Bittinger, M. (2007), *Basic mathematics*, (10th ed.). Addison-Wesley.

Lial, M., Salzman, S.,& Hestwood, D., (2006). *Basic College Mathematics*, (7th ed.). Addison Wesley.

Nolting, P. (2008). *Math study skills workbook*, (3rd ed.). Houghton Mifflin.

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

1a. School or College	1b. Division	1c. Department
CT CTC	APRS Division of Preparatory Study	College Preparatory & Developmental Studies, Math

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
MATH	A054A	MATH A050A	1 cr.	(1+0)

6. Complete Course Title
Prealgebra A

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☒ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions
- ☐ General Education Requirement
- ☒ Other CCG and Catalog Copy (please specify)

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2015 To: /9999

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

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. ATP A100	1/21/15	Rocky Capozzi
2. CIOS A116	1/21/15	Darlene Gill
3.		

Initiator Name (typed): Thomas Harman Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 1/21/15
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 1/21/15

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Topics include operations and applications of whole numbers, integers, fractions, decimals, ratios and proportions, and percents.The topic of math anxiety is dealt with throughout the course. Special Note: MATH A054A, A054B, A054C combined are equivalent to MATH A054.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*

16b. Co-requisite(s) *(concurrent enrollment required)*

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*
An approved UAA placement test is required.

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
BOR resolution to unify course descriptions for developmental courses.

Initiator (faculty only) Date
Thomas Harman
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chair Date

☐ Approved
☐ Disapproved
College/School Curriculum Committee Chair Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chair Date

☐ Approved
☐ Disapproved
Provost or Designee Date

University of Alaska Anchorage
Community and Technical College
Course Content Guide

I. Date of Initiation: January 2015

II. Curriculum Action Request

A. College:	Community and Technical College
B. Course Prefix:	MATH
C. Course Number:	A054A
D. Number of Credits:	1
E. Contact Hours:	1+0 (45 hours of total student engagement)
F. Course Title:	Prealgebra A
G. Grading Basis:	A-F
H. Implementation Date:	Fall 2015
I. Cross-listed/Stacked:	N/A
J. Course Description:	Topics include operations and applications of whole numbers, integers, fractions, decimals, ratios and proportions, and percents. The topic of math anxiety is dealt with throughout the course. Special Note: MATH A054A, A054B, A054C combined are equivalent to MATH A054.
K. Course Prerequisites:	N/A
L. Course Co-requisites:	N/A
M. Other Restrictions:	N/A
N. Registration Restrictions:	An approved UAA placement test is required.
O. Course Fees:	Yes

III. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will:
   1. Explain how to manipulate whole numbers, integers, fractions and decimals.

B. Student Learning Outcomes. Students will be able to:
   1. Understand and manipulate integers, decimals and fractions

IV. Guidelines for evaluation

Assessment tools for all SLOs consist of: homework assignments, quizzes, tests, and a midterm examination. A comprehensive final exam will be given.

V. Course Level Justification

The course prepares students for Beginning Algebra and improves basic quantitative skills.

VI. Topical Course Outline

1.0 Math Anxiety

2.0 Basic Arithmetic
- 2.1 Notation of Whole Numbers
- 2.2 Arithmetic on Whole Numbers
- 2.3 Arithmetic on Integers
- 2.4 Order of Operations
- 2.5 Factors and Multiples
- 2.6 Simplifying Fractions
- 2.7 Multiplying and Dividing Fractions
- 2.8 Adding and Subtracting Fractions
- 2.9 Converting Mixed Numbers to Fractions
- 2.10 Converting Between Fractions and Decimals
- 2.11 Decimal Arithmetic
- 2.12 Order of Real Numbers and the Number Line
- 2.13 Rounding and Estimation

VI. Suggested Texts

Bittinger, M., Ellenbogen, D.,& Johnson, B. (2012). *Prealgebra* (6th ed.). Addison Wesley.

Lontz, B. (2014). *Concepts of numbers for arithmetic and prealgebra* (4th ed.). Pearson.

McKeague, C.,& Pawlik, K. (2014), *Prealgebra.* XYZ Textbooks.

VII. Bibliography

Akst, G., & Bragg S. (2012). *Basic college mathematics through applications*. (5th ed.). Addison Wesley.

Aufmann, R., Barker, V., & Lockwood, J. (2009). *Prealgebra*, (5th ed.). Houghton Mifflin.

Bittinger, M. (2007), *Basic mathematics*, (10^{th} ed.). Addison-Wesley.

Lial, M., & Salzman, S., & Hestwood, D., (2006). *Basic college mathematics*, (7th ed.). Addison Wesley.

Nolting, P. (2008). *Math study skills workbook*, (3rd ed.). Houghton Mifflin.

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

1a. School or College	1b. Division	1c. Department
CT CTC	APRS Division of Preparatory Study	College Preparatory & Developmental Studies, Math

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
MATH	A054B	MATH A050B	1 cr.	(1+0)

6. Complete Course Title
Prealgebra B

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☒ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions
- ☐ General Education Requirement
- ☒ Other CCG and Catalog Copy (please specify)

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2015 To: /9999

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

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. ATP A100	1/21/15	Rocky Capozzi
2. CIOS A116	1/21/15	Darlene Gill
3.		

Initiator Name (typed): Thomas Harman Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 1/21/15
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 1/21/15

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Topics include operations and applications of integers, fractions, decimals, ratios and proportions, percents, exponents and radicals. Special Note: MATH A054A, A054B, A054C combined are equivalent to MATH A054.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
MATH A054A with a minimum grade of C

16b. Co-requisite(s) *(concurrent enrollment required)*

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
BOR resolution to unify course descriptions for developmental courses.

Initiator (faculty only) Date
Thomas Harman
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chair Date

☐ Approved
☐ Disapproved
College/School Curriculum Committee Chair Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chair Date

☐ Approved
☐ Disapproved
Provost or Designee Date

University of Alaska Anchorage
Community and Technical College
Course Content Guide

I. Date of Initiation: January 2015

II. Curriculum Action Request

A. College:	Community and Technical College
B. Course Prefix:	MATH
C. Course Number:	A054B
D. Number of Credits:	1
E. Contact Hours:	1+0 (45 hours of total student engagement)
F. Course Title:	Prealgebra B
G. Grading Basis:	A-F
H. Implementation Date:	Fall 2015
I. Cross-listed/Stacked:	N/A
J. Course Description:	Topics include operations and applications of integers, fractions, decimals, ratios and proportions, percents. exponents and radicals Special Note: MATH A054A, A054B, A054C combined are equivalent to MATH A054.
K. Course Prerequisites:	MATH A054A with a minimum grade of C
L. Course Co-requisites:	N/A
M. Other Restrictions:	N/A
N. Registration Restrictions:	N/A
O. Course Fees:	Yes

III. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will:
1. Define exponents and radicals
2. Demonstrate how to compute ratio, proportions and percentages, and solve simple interest problems.

B. Student Learning Outcomes. Students will be able to:
1. Understand and manipulate integers, decimals and fractions
2. Understand and apply graphical and proportional data

IV. Guidelines for evaluation

Assessment tools for all SLOs consist of: homework assignments, quizzes, tests, and a midterm examination. A comprehensive final exam will be given.

V. Course Level Justification

The course prepares students for Beginning Algebra and improves basic quantitative skills.

VI. Topical Course Outline

1.0 Exponents and Radicals
- 1.1 Integer Exponents
- 1.2 Scientific Notation
- 1.3 Radicals
- 1.4 Compound Interest (optional)

2.0 Arithmetic Applications
- 2.1 Decimal Arithmetic
- 2.2 Order of Real Numbers and the Number Line
- 2.3 Rounding and Estimation
- 2.4 Ratios
- 2.5 Rates and Unit Prices
- 2.6 Proportions
- 2.7 Unit Conversions
- 2.8 Percent
- 2.9 Applications of Percent
- 2.10 Simple Interest

VI. Suggested Texts

Bittinger, M., Ellenbogen, D.,& Johnson, B. (2012). *Prealgebra* (6th ed.). Addison Wesley.

Lontz, B. (2014). *Concepts of numbers for arithmetic and prealgebra* (4th ed.). Pearson.

McKeague, C.,& Pawlik, K. (2014), *Prealgebra.* XYZ Textbooks.

VII. Bibliography

Akst, G., & Bragg S. (2012). *Basic college mathematics through applications*. (5th ed.). Addison Wesley.

Aufmann, R., Barker, V., & Lockwood, J. (2009). *Prealgebra*, (5th ed.). Houghton Mifflin.

Bittinger, M. (2007), *Basic mathematics*, (10^{th} ed.). Addison-Wesley.

Lial, M., & Salzman, S., & Hestwood, D., (2006). *Basic college mathematics*, (7th ed.). Addison Wesley.

Nolting, P. (2008). *Math study skills workbook*, (3rd ed.). Houghton Mifflin.

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

1a. School or College	1b. Division	1c. Department
CT CTC	APRS Division of Preparatory Study	College Preparatory & Developmental Studies, Math

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
MATH	A054C	MATH A050C	1 cr.	(1+0)

6. Complete Course Title
Prealgebra C

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☒ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions
- ☐ General Education Requirement
- ☒ Other CCG and Catalog Copy (please specify)

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2015 To: /9999

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

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. ATP A100	1/21/15	Rocky Capozzi
2. CIOS A116	1/21/15	Darlene Gill
3.		

Initiator Name (typed): Thomas Harman Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 1/21/15
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 1/21/15

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Topics include evaluation of algebraic expressions with applications, geometry and measures. Special Note: MATH A054A, A054B, A054C combined are equivalent to MATH A054.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
MATH A054B with a minimum grade of C

16b. Co-requisite(s) *(concurrent enrollment required)*

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
BOR resolution to unify course descriptions for develpmental courses.

Initiator (faculty only) Date
Thomas Harman
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chair Date

☐ Approved
☐ Disapproved
College/School Curriculum Committee Chair Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chair Date

☐ Approved
☐ Disapproved
Provost or Designee Date

University of Alaska Anchorage
Community and Technical College
Course Content Guide

I. Date of Initiation: January 2015

II. Curriculum Action Request

A. College:	Community and Technical College
B. Course Prefix:	MATH
C. Course Number:	A054C
D. Number of Credits:	1
E. Contact Hours:	1+0 (45 hours of total student engagement)
F. Course Title:	Prealgebra C
G. Grading Basis:	A-F
H. Implementation Date:	Fall 2015
I. Cross-listed/Stacked:	N/A
J. Course Description:	Topics include evaluation of algebraic expressions with applications, geometry and measures. Special Note: MATH A054A, A054B, A054C combined are equivalent to MATH A054.
K. Course Prerequisites:	MATH A054B with a minimum grade of C
L. Course Co-requisites:	N/A
M. Other Restrictions:	N/A
N. Registration Restrictions:	N/A
O. Course Fees:	Yes

III. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will:
   1. Introduce algebraic expressions and polynomials

B. Student Learning Outcomes. Students will be able to:
   1. Simplify and evaluate basic algebraic expressions and equations

IV. Guidelines for evaluation

Assessment tools for all SLOs consist of: homework assignments, quizzes, tests, and a midterm examination. A comprehensive final exam will be given.

V. Course Level Justification

The course prepares students for Beginning Algebra and improves basic quantitative skills.

VI. Topical Course Outline

1.0 Data
- 1.1 Reading and Constructing Tables
- 1.2 Pictographs, Bar Graphs, and Line Graphs
- 1.3 Measures of Central Tendency

2.0 Geometry and Applications
- 2.1 Calculating Perimeter
- 2.2 Calculating Area
- 2.3 Calculating Volume
- 2.4 Pythagorean Theorem
- 2.5 Similar Triangles

3.0 Algebraic Concepts
- 3.1 Algebraic Expressions
- 3.2 Arithmetic on Polynomials
- 3.3 Solving Algebraic Equations with Integers
- 3.4 Solving Algebraic Equations with Decimals
- 3.5 Solving Algebraic Equations with Fractions
- 3.6 Graphing Algebraic Equations

VI. Suggested Texts

Bittinger, M., Ellenbogen, D.,& Johnson, B. (2012). *Prealgebra* (6th ed.). Addison Wesley.

Lontz, B. (2014). *Concepts of numbers for arithmetic and prealgebra* (4th ed.). Pearson.

McKeague, C.,& Pawlik, K. (2014), *Prealgebra.* XYZ Textbooks.

VII. Bibliography

Akst, G., & Bragg S. (2012). *Basic college mathematics through applications*. (5th ed.). Addison Wesley.

Aufmann, R., Barker, V., & Lockwood, J. (2009). *Prealgebra*, (5th ed.). Houghton Mifflin.

Bittinger, M. (2007), *Basic mathematics*, (10^{th} ed.). Addison-Wesley.

Lial, M., & Salzman, S., & Hestwood, D., (2006). *Basic college mathematics*, (7th ed.). Addison Wesley.

Nolting, P. (2008). *Math study skills workbook*, (3rd ed.). Houghton Mifflin.

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

1a. School or College	1b. Division	1c. Department
CT CTC	APRS Division of Preparatory Study	College Preparatory & Developmental Studies, Math

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
MATH	A055		3 cr.	(3+0)

6. Complete Course Title
Elementary Algebra

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level ☐ College ☐ Major
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions
- ☐ General Education Requirement
- ☒ Other CCG and Catalog Copy (please specify)

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2015 To: /9999

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

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. See attached list		
2.		
3.		

Initiator Name (typed): Thomas Harman Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 1/21/15
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 1/21/15

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Topics include evaluating and simplifying algebraic expressions, polynomials, factoring, integer exponents, rational expressions, solutions of linear equations and inequalities, quadratic equations and graphs of lines.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
MATH A054 with a minimum grade of C

16b. Co-requisite(s) *(concurrent enrollment required)*

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*
If the prerequisite is not satisfied, an approved UAA placement test is required.

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
BOR resolution to unify course descriptions for developmental courses.

Initiator (faculty only) Date
Thomas Harman
Initiator (TYPE NAME)

☐ Approved ☐ Disapproved Department Chair Date

☐ Approved ☐ Disapproved College/School Curriculum Committee Chair Date

☐ Approved ☐ Disapproved Dean/Director of School/College Date

☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chair Date

☐ Approved ☐ Disapproved Provost or Designee Date

University of Alaska Anchorage
Community and Technical College
Course Content Guide

I. Date of Initiation: January 2015

II. Curriculum Action Request

A. College:	Community and Technical College
B. Course Prefix:	MATH
C. Course Number:	A055
D. Number of Credits:	3
E. Contact Hours:	3+0 (135 hours of total student engagement)
F. Course Title:	Elementary Algebra
G. Grading Basis:	A-F
H. Implementation Date:	Fall 2015
I. Cross-listed/Stacked:	N/A
J. Course Description:	Topics include evaluating and simplifying algebraic expressions, polynomials, factoring, integer exponents, rational expressions, solutions of linear equations and inequalities, quadratic equations and graphs of lines.
K. Course Prerequisites:	MATH A054 with a minimum grade of C
L. Course Co-requisites:	N/A
M. Other Restrictions:	N/A
N. Registration Restrictions:	If the prerequisite is not satisfied, an approved UAA placement test is required.
O. Course Fees:	Yes

III. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will:

1. Define polynomial and rational expressions and demonstrate the basic operations on each
2. Introduce the concept of a linear equation
3. Demonstrate how to solve linear, quadratic and rational equations, and how to apply them to simple models
4. Define exponents and radicals

B. Student Learning Outcomes. Students will be able to:

1. Evaluate, factor and simplify algebraic, rational and absolute value expressions
2. Solve, graph and interpret linear equations and inequalities
3. Solve and interpret quadratic and rational equations
4. Solve applications of linear, quadratic and rational equations

IV. Guidelines for evaluation

Assessment tools for all SLOs consist of: homework assignments, quizzes, tests, and a midterm examination. A comprehensive final exam will be given.

V. Course Level Justification

The course is a prerequisite for General Education Quantitative Skills courses at UAA.

VI. Topical Course Outline

1.0 Real Numbers and their Basic Properties
- 1.1 Basic Definitions
- 1.2 Operations on Real Numbers
- 1.3 Properties of Real Numbers
- 1.4 Powers of Real Numbers

2.0 Equations and Inequalities
- 2.1 Solving Equations
- 2.2 Simplifying Expressions to Solve Equations
- 2.3 Application Problems
- 2.4 Formulas for Solving Application Problems
- 2.5 Solving Inequalities

3.0 Graphing and Solving Systems of Equations and Inequalities
- 3.1 The Rectangular Coordinate System
- 3.2 Graphing Linear Equations
- 3.3 Slope and Applications
- 3.4 Solving Systems of Linear Equations by Graphing
- 3.5 Solving Systems of Linear Equations by Substitution
- 3.6 Solving Systems of Equations by Elimination/Addition
- 3.7 Applications of Systems of Equations
- 3.8 Systems of Linear Inequalities (optional)

4.0 Polynomials
- 4.1 Exponents and their Properties
- 4.3 Negative Exponents and Scientific Notation
- 4.4 Introduction to Polynomials
- 4.5 Adding and Subtracting Polynomials
- 4.6 Multiplying Polynomials
- 4.7 Dividing Polynomials

5.0 Factoring Polynomials
- 5.1 Factoring Out the Greatest Common Factor; Factoring by Grouping
- 5.2 Factoring the Difference of Two Squares
- 5.3 Factoring Trinomials with Lead Coefficients of 1
- 5.4 Factoring General Trinomials
- 5.5 Factoring the Sum and Difference of Two Cubes
- 5.6 Factoring: A General Strategy
- 5.7 Solving Equations by Factoring
- 5.8 Solving Applications

6.0 Proportion and Rational Expressions
- 6.1 Ratios
- 6.2 Proportions and Similar Triangles
- 6.3 Simplifying Rational Expressions

6.4 Multiplying and Dividing Rational Expressions
6.5 Adding and Subtracting Rational Expressions
6.6 Complex Rational Expressions
6.7 Solving Rational Equations
6.8 Applications of Equations that Contain Rational Expressions

VI. Suggested Texts

Bittinger M., Beecher J., & Johnson B. (2015). *Introductory algebra*, (12th ed.). Addison Wesley.

Gustafson R., Karr R., & Massey M. (2014). *Beginning and intermediate algebra*, (7th ed.). Cengage.

VII. Bibliography

Blitzer, R. (2002). *Introductory algebra for college students* (3rd ed.). Prentice Hall.

Hubbard, & Robinson (2002). *Elementary algebra*, (2nd ed.). Houghton Mifflin.

Lial, Hornsby, & McGinnis (2004). *Introductory Algebra*, (9th ed.). Addison Wesley.

McKeague (2004). *Elementary algebra*, (7th ed.). Thomson Publishing.

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

1a. School or College	1b. Division	1c. Department
CT CTC	APRS Division of Preparatory Study	College Preparatory & Developmental Studies

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
MATH	A055A	MATH A058A	1 cr.	(1+0)

6. Complete Course Title
Elementary Algebra A

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level ☐ College ☐ Major
- ☒ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions
- ☐ General Education Requirement
- ☒ Other CCG and Catalog Copy (please specify)

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2015 To: /9999

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

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. see attached list		
2.		
3.		

Initiator Name (typed): Thomas Harman Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 1/21/15
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 1/21/15

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Topics include solutions of linear equations and graphs of lines.
Special Note: MATH A055A, A055B, A055C combined are equivalent to MATH A055.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
MATH A054 with a minimum grade of C

16b. Co-requisite(s) *(concurrent enrollment required)*

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*
If the prerequisite is not satisfied, an approved UAA placement test is required.

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
BOR resolution to unify course descriptions for developmental courses.

Initiator (faculty only) Date
Thomas Harman
Initiator (TYPE NAME)

☐ Approved ☐ Disapproved Department Chair Date

☐ Approved ☐ Disapproved College/School Curriculum Committee Chair Date

☐ Approved ☐ Disapproved Dean/Director of School/College Date

☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chair Date

☐ Approved ☐ Disapproved Provost or Designee Date

University of Alaska Anchorage
Community and Technical College
Course Content Guide

I. Date of Initiation: January 2015

II. Curriculum Action Request

A. College:	Community and Technical College
B. Course Prefix:	MATH
C. Course Number:	A055A
D. Number of Credits:	1
E. Contact Hours:	1+0 (45 hours of total student engagement)
F. Course Title:	Elementary Algebra A
G. Grading Basis:	A-F
H. Implementation Date:	Fall 2015
I. Cross-listed/Stacked:	N/A
J. Course Description:	Topics include solutions of linear equations and graphs of lines. Special Note: MATH A055A, A055B, A055C combined are equivalent to MATH A055.
K. Course Prerequisites:	MATH A054 with a minimum grade of C
L. Course Co-requisites:	N/A
M. Other Restrictions:	N/A
N. Registration Restrictions:	If the prerequisite is not satisfied, an approved UAA placement test is required.
O. Course Fees:	Yes

III. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will:
   1. Introduce the concept of a linear equation
   2. Demonstrate how to solve linear equations, and how to apply them to simple models

B. Student Learning Outcomes. Students will be able to:
   1. Solve, graph and interpret linear equations
   2. Solve applications of linear equations

IV. Guidelines for evaluation

Assessment tools for all SLOs consist of: homework assignments, quizzes, tests, and a midterm examination. A comprehensive final exam will be given.

V. Course Level Justification

The course is a prerequisite for General Education Quantitative Skills courses at UAA.

VI. Topical Course Outline

1.0 Real Numbers and their Basic Properties
- 1.1 Basic Definitions
- 1.2 Operations on Real Numbers
- 1.3 Properties of Real Numbers
- 1.4 Powers of Real Numbers
- 1.5 Roots of Real Numbers

2.0 Equations and Inequalities
- 2.1 Solving Equations
- 2.2 Simplifying Expressions to Solve Equations
- 2.3 Application Problems
- 2.4 Formulas for Solving Application Problems

3.0 Graphing Linear Equations
- 3.1 The Rectangular Coordinate System
- 3.2 Graphing Linear Equations
- 3.3 Slope and Applications

VI. Suggested Texts

Bittinger M., Beecher J., & Johnson B. (2015). *Introductory algebra*, (12th ed.). Addison Wesley.

Gustafson R., Karr R., & Massey M. (2014). *Beginning and intermediate algebra*, (7th ed.). Cengage.

VII. Bibliography

Blitzer, R. (2002). *Introductory algebra for college students* (3rd ed.). Prentice Hall.

Hubbard, & Robinson (2002). *Elementary algebra*, (2nd ed.). Houghton Mifflin.

Lial, Hornsby, & McGinnis (2004). *Introductory Algebra*, (9th ed.). Addison Wesley.

McKeague (2004). *Elementary algebra*, (7th ed.). Thomson Publishing.

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

1a. School or College	1b. Division	1c. Department
CT CTC	APRS Division of Preparatory Study	College Preparatory & Developmental Studies, Math

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
MATH	A055B	MATH A058B	1 cr.	(1+0)

6. Complete Course Title
Elementary Algebra B

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level ☐ College ☐ Major
- ☒ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions
- ☐ General Education Requirement
- ☒ Other CCG and Catalog Copy (please specify)

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2015 To: /9999

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

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. see attached list		
2.		
3.		

Initiator Name (typed): Thomas Harman Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 1/21/15
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 1/21/15

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Topics include evaluating and simplifying algebraic expressions, polynomials, factoring, integer exponents. Special Note: MATH A055A, A055B, A055C combined are equivalent to MATH A055.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
MATH A055A with a minimum grade of C

16b. Co-requisite(s) *(concurrent enrollment required)*

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
BOR resolution to unify course descriptions for developmental courses.

Initiator (faculty only) Date
Thomas Harman
Initiator (TYPE NAME)

☐ Approved ☐ Disapproved Department Chair Date

☐ Approved ☐ Disapproved College/School Curriculum Committee Chair Date

☐ Approved ☐ Disapproved Dean/Director of School/College Date

☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chair Date

☐ Approved ☐ Disapproved Provost or Designee Date

University of Alaska Anchorage
Community and Technical College
Course Content Guide

I. Date of Initiation: January 2015

II. Curriculum Action Request

A. College:	Community and Technical College
B. Course Prefix:	MATH
C. Course Number:	A055B
D. Number of Credits:	1
E. Contact Hours:	1+0 (45 hours of total student engagement)
F. Course Title:	Elementary Algebra B
G. Grading Basis:	A-F
H. Implementation Date:	Fall 2015
I. Cross-listed/Stacked:	N/A
J. Course Description:	Topics include evaluating and simplifying algebraic expressions, polynomials, factoring, integer exponents. Special Note: MATH A055A, A055B, A055C combined are equivalent to MATH A055.
K. Course Prerequisites:	MATH A055A with a minimum grade of C
L. Course Co-requisites:	N/A
M. Other Restrictions:	N/A
N. Registration Restrictions:	N/A
O. Course Fees:	Yes

III. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will:
1. Define polynomial expressions and demonstrate the basic operations
2. Define exponents and their properties
3. Demonstrate how to solve systems of linear equations

B. Student Learning Outcomes. Students will be able to
1. Evaluate and simplify polynomial expressions
2. Perform operations on polynomial expressions
3. Solve and interpret systems of linear equation
4. Solve applications of linear equations

IV. Guidelines for evaluation

Assessment tools for all SLOs consist of: homework assignments, quizzes, tests, and a midterm examination. A comprehensive final exam will be given.

V. Course Level Justification

The course is a prerequisite for General Education Quantitative Skills courses at UAA.

VI. Topical Course Outline

1.0 Solving Systems of Equations and Inequalities
- 1.1 Solving Systems of Linear Equations by Graphing
- 1.2 Solving Systems of Linear Equations by Substitution
- 1.3 Solving Systems of Linear Equations by Elimination/Addition
- 1.4 Applications of Systems of Equations
- 1.5 Systems of Linear Inequalities (optional)

2.0 Polynomials
- 2.1 Exponents and their Properties
- 2.2 Negative Exponents and Scientific Notation
- 2.3 Introduction to Polynomials
- 2.4 Adding and Subtracting Polynomials
- 2.5 Multiplying Polynomials
- 2.6 Dividing Polynomials

VI. Suggested Texts

Bittinger M., Beecher J., & Johnson B. (2015). *Introductory algebra*, (12th ed.). Addison Wesley.

Gustafson R., Karr R., & Massey M. (2014). *Beginning and intermediate algebra*, (7th ed.). Cengage.

VII. Bibliography

Blitzer, R. (2002). *Introductory algebra for college students* (3rd ed.). Prentice Hall.

Hubbard, & Robinson (2002). *Elementary algebra*, (2nd ed.). Houghton Mifflin.

Lial, Hornsby, & McGinnis (2004). *Introductory Algebra*, (9th ed.). Addison Wesley.

McKeague (2004). *Elementary algebra*, (7th ed.). Thomson Publishing.

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

1a. School or College	1b. Division	1c. Department
CT CTC	APRS Division of Preparatory Study	College Preparatory & Developmental Studies, Math

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
MATH	A055C	MATH A058C	1 cr.	(1+0)

6. Complete Course Title
Elementary Algebra C

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level ☐ College ☐ Major
- ☒ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions
- ☐ General Education Requirement
- ☒ Other CCG and Catalog Copy (please specify)

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2015 To: /9999

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

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. see attached list		
2.		
3.		

Initiator Name (typed): Thomas Harman Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 1/21/15
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 1/21/15

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Topics include evaluating and simplifying algebraic expressions, factoring, and quadratic equations.
Special Note: MATH A055A, A055B, A055C combined are equivalent to MATH A055.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
MATH A055B with a minimum grade of C

16b. Co-requisite(s) *(concurrent enrollment required)*

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
BOR resolution to unify course descriptions for developmental courses.

Initiator (faculty only) Date
Thomas Harman
Initiator (TYPE NAME)

☐ Approved ☐ Disapproved Department Chair Date

☐ Approved ☐ Disapproved College/School Curriculum Committee Chair Date

☐ Approved ☐ Disapproved Dean/Director of School/College Date

☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chair Date

☐ Approved ☐ Disapproved Provost or Designee Date

University of Alaska Anchorage
Community and Technical College
Course Content Guide

I. Date of Initiation: January 2015

II. Curriculum Action Request

A. College:	Community and Technical College
B. Course Prefix:	MATH
C. Course Number:	A055C
D. Number of Credits:	1
E. Contact Hours:	1+0 (45 hours of total student engagement)
F. Course Title:	Elementary Algebra C
G. Grading Basis:	A-F
H. Implementation Date:	Fall 2015
I. Cross-listed/Stacked:	N/A
J. Course Description:	Topics include evaluating and simplifying algebraic expressions, factoring, and quadratic equations. Special Note: MATH A055A, A055B, A055C combined are equivalent to MATH A055.
K. Course Prerequisites:	MATH A055B with a minimum grade of C
L. Course Co-requisites:	N/A
M. Other Restrictions:	N/A
N. Registration Restrictions:	N/A
O. Course Fees:	Yes

III. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will:

1. Define polynomial and rational expressions and demonstrate the basic operations on each
2. Introduce the concept of a rational equation
3. Demonstrate how to solve rational equations and how to apply them to simple models

B. Student Learning Outcomes. Students will be able to:

1. Evaluate, factor and simplify rational expressions
2. Perform operations on rational expressions
3. Solve, graph and interpret rational equations
4. Solve and interpret rational equations
5. Solve applications of rational equations

IV. Guidelines for evaluation

Assessment tools for all SLOs consist of: homework assignments, quizzes, tests, and a midterm examination. A comprehensive final exam will be given.

V. Course Level Justification

The course is a prerequisite for General Education Quantitative Skills courses at UAA.

VI. Topical Course Outline

1.0 Factoring Polynomials
- 1.1 Factoring out the Greatest Common Factor; Factoring by Grouping
- 1.2 Factoring the Difference of Two Squares
- 1.3 Factoring Trinomials with a Leading Coefficient of 1
- 1.4 Factoring General Trinomials
- 1.5 Factoring the Sum and Difference of Cubes
- 1.6 Factoring: A General Strategy
- 1.7 Solving Equations by Factoring
- 1.8 Solving Applications

2.0 Proportions and Rational Expressions
- 2.1 Ratios
- 2.2 Proportions and Similar Triangles
- 2.3 Simplifying Rational Expressions
- 2.4 Multiplying and Dividing Rational Expressions
- 2.5 Adding and Subtracting Rational Expressions
- 2.6 Complex Rational Expressions
- 2.7 Solving Rational Equations
- 2.8 Applications Involving Rational Equations

VI. Suggested Texts

Bittinger M., Beecher J., & Johnson B. (2015). *Introductory algebra*, (12th ed.). Addison Wesley.

Gustafson R., Karr R., & Massey M. (2014). *Beginning and intermediate algebra*, (7th ed.). Cengage.

VII. Bibliography

Blitzer, R. (2002). *Introductory algebra for college students* (3rd ed.). Prentice Hall.

Hubbard, & Robinson (2002). *Elementary algebra*, (2nd ed.). Houghton Mifflin.

Lial, Hornsby, & McGinnis (2004). *Introductory Algebra*, (9th ed.). Addison Wesley.

McKeague (2004). *Elementary algebra*, (7th ed.). Thomson Publishing.

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

1a. School or College	1b. Division	1c. Department
AS CAS	ASSC Division of Social Science	Sociology

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
Soc	A 250	NA	3	(3+0)

6. Complete Course Title
Guns in American Society

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions
- ☐ General Education Requirement

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2015 To: /9999

12. ☐ Cross Listed with

☐ Stacked with

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Sociology	2/9/15	Nelta Edwards
2.		
3.		

Initiator Name (typed): John Riley Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 02/02/15
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 02/02/15

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Focuses on the use of firearms in recreation, self-defense, and crime with an introduction to relevant empirical research. Offers historical and comparative perspectives on U.S. firearms policies with an emphasis on the social context in which competing groups work to shape and balance concerns about civil rights and public safety.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
SOC A101 with a minimum grade of c.

16b. Co-requisite(s) *(concurrent enrollment required)*

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Recent research suggests that Alaska has one of the highest rates of firearms ownership in the United States and public policies regulating firearms are a matter of great concern for many Alaskans. UAA currently offers no instruction on this topic.

Initiator (faculty only) Date
John Riley
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chair Date

☐ Approved
☐ Disapproved College/School Curriculum Committee Chair Date

☐ Approved
☐ Disapproved Dean/Director of School/College Date

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chair Date

☐ Approved
☐ Disapproved Provost or Designee Date

UNIVERSITY OF ALASKA ANCHORAGE
December 2014

School/College	College of Arts and Sciences
Course Subject	Sociology
Course Number	SOC A250
Number of Credits	3+0
Course Title	Guns in American Society
Grading Basis	A-F

Course Description: Focuses on the use of firearms in recreation, self-defense, and crime with an introduction to relevant empirical research. Offers historical and comparative perspectives on U.S. firearms policies with an emphasis on the social context in which competing groups work to shape and balance concerns about civil rights and public safety.

Course Level Justification: Students enter this course after completing SOC A101.

Prerequisite(s)	SOC A101 with a minimum grade of C.
Fees	None

Instructional Goals

The Instructor will:
1. Describe, compare, and contrast commonly available firearms types and describe basic terminology and principles of firearms safety.
2. Describe the social forces influencing the evolution of U.S. firearms laws while comparing U.S. policies to regulatory regimes in other developed countries.
3. Describe, compare, and contrast major perspectives on U.S. firearms laws with an emphasis on competing efforts to balance concerns about civil rights and public safety.
4. Describe and explain key research issues, including current empirical work on the relationship between firearms availability and public safety.

Student Learning Outcomes

The student will be able to	**Assessment Method**
1. Describe, compare, and contrast commonly available types of firearms and describe and explain basic principles of firearms safety.	Writing assignments, discussion, class presentations.
2. Describe the social forces influencing the evolution of U.S. firearms laws and compare U.S. laws to those of other developed nations.	Exams, writing assignments, discussion, class presentations.
3. Describe, compare, and critique major perspectives on U.S. firearms laws with an emphasis on competing efforts to balance concerns about civil rights and	Exams, writing assignments, discussion, class presentations.

public safety.	
4. Describe, and explain key findings and issues in the research literature on firearms and public safety.	Exams, writing assignments, discussion, class presentations.

Guidelines for Evaluation

Students will be evaluated on the basis of exams, written assignments, and class presentation and discussion.

Topical Course Outline

I. Common Firearms, Basic Terminology, and Safety Issues

1. Muskets, Rifles, Pistols, Revolvers, and Shotguns, 1770-1870
2. Rifles, Pistols, Revolvers, and Shotguns, 1870-1970
3. Contemporary Firearms: Muzzle Energy, Bullet Construction, and Rate of Fire
4. Safe Handling of Firearms
5. Safe Storage of Firearms and Ammunition
6. Accidents, Crimes, and Suicides Involving Firearms
7. Constitutional Rights, Public Safety, and the Rule of Law

II. Firearms Regulation in the United States in Comparative Perspective

1. The Second Amendment and the Militia Acts: The Right to Keep and Bear Arms
2. State and Local Firearms Regulations in the 19th Century
3. The Sullivan Dangerous Weapons Act: New York, 1911
4. Model Legislation: The Uniform Firearms Act
5. Prohibition, Crime and the National Firearms Act of 1934
6. The Federal Firearms Act of 1938: Licensing Dealers, Restricting Felons
7. U.S. v. Miller, 1939 to the Gun Control Act of 1968
8. Regulatory Concerns Since 1968: Handgun Ownership, Concealed Carry, So-Called Cop Killer Bullets, Saturday Night Specials and Assault Rifles
9. District of Columbia v. Heller and McDonald v. City of Chicago
10. Firearms Regulations in Canada, Europe, and Japan

III. Central Issues in Firearms Research

1. Victimization Rates and the Availability of Firearms: Accidents, Crimes, Suicides
2. Perspectives on Facilitation and Deterrence
3. Methodological Issues: Reverse Causality, Polling and Sampling Limitations, Heterogeneity, Problems with Time Series Data
4. Proxy Measures of Gun Ownership: Cook's Index, Firearms Suicides / Suicides (FS/S), Firearms Homicides / Homicides (FH/H), Hunting License Sales
5. Guns, Homicide, and Economic Development: The "American Anomaly"
6. Race, Class, Age and Gender as Predictors of Homicide by Firearms
7. Regional and International Variation in Homicide Rates and Gun Availability
8. Domestic Violence, Mental Illness, Suicide, and Mass Casualty Events
9. Public Opinion and Firearms Regulation
10. What Works? Evidence-Based Assessment of Efforts to Reduce Gun Violence

Suggested Texts

Winkler, Adam. 2011. *Gunfight: the Battle over the Right to Bear Arms in America*. New York: W.W. Norton.

Lott, John R. 2010. *More Guns Less Crime: Understanding Crime and Gun Control Laws,* 3rd Edition. Chicago: University of Chicago Press.

Hemenway, David. 2007. *Private Guns Public Health.* Ann Arbor: University of Michigan Press.

Beeghley, Leonard. 2003. *Homicide: A Sociological Explanation.* New York: Rowman and Littlefield.

References

Baker, Jeanine and Samara. McPhedran. 2007. "Gun Laws and Sudden Death: Did the Australian Firearms Legislation of 1996 Make a Difference?" *British Journal of Criminology* 47:455-469.

Boyce, Jillian and Adam Cotter. 2013. "Homicide in Canada, 2012." Canadian Centre for Justice Statistics, Available at: http://www.statcan.gc.ca/pub/85-002-x/2013001/article/11882-eng.htm?fpv=2693 Accessed on 11/30/2014.

Center for Disease Control. 2003. "First Reports Evaluating the Effectiveness of Strategies for Preventing Violence: Firearms Laws." *MMWR Recommendations and Reports* 52 (RR14); 11-12. Available at www.cdc.gov/mmwr/preview/mmwrhtml/rr5214a2.htm Accessed on 2/19/1014.

Cook, Phillip J., 1981. "The Effect of gun Availability on Violent Crime Patterns," *Annals of the American Academy of Political and Social Science* 455:63-79.

Cooper, Alexia and Erica L. Smith. 2011. "Homicide Trends in the United States, 1980-2008." Bureau of Justice Statistics. NCJ 236018. Available at: http://www.bjs.gov/content/pub/pdf/htus8008.pdf Retrieved on 11/30/2014.

Cotter, Adam. 2014. "Firearms and Violent Crime in Canada, 2012." *Canadian Centre for Justice Statistics.* Available at: http://www.statcan.gc.ca/pub/85-002-x/2014001/article/11925-eng.htm Retrieved on 11/30/2014.

Fleegler, Eric W. et al. 2013. "Firearms Legislation and Firearms-Related Fatalities in the United States." *Journal of the American Medical Association* 173: 732-740.

Hagan, J. 1991. *The Disreputable Pleasures: Crime and Deviance in Canada.* Toronto: McGraw Hill.

Hoskins, Anthony. 2011. Household Gun Prevalence and Rates of Violent Crime: a Test of Competing Theories," *Criminal Justice Studies: A Critical Journal of Crime, Law, and Society* 24:125-136.

Kleck, Gary. 1997. *Targeting Guns: Firearms and Their Control.* New Brunswick, New Jersey: Aldine Transaction Publishing.

---------2004. "Measures of Gun Ownership Levels for Macro Level Crime and Violence Research," *Journal of Research in Crime and Delinquency* 41:3-36.

Krug, E.G., K.E. Powell, and L.L. Dahlberg. 1998. "Firearm-Related Deaths in the United States and 35 Other High- and Upper Middle- Income Countries." *International Journal of Epidemiology* 27: 214-221.

Leff, Carol Skalnick and Mark Leff. 1981. "The Politics of Ineffectiveness: Federal Firearms Legislation, 1919-1938," *Annals of the American Academy of Political and Social Science 455:48-62.*

LeMaire, J. 2005. "The Costs of Firearms Deaths in the United States: Reduced Life Expectancies and Increased Insurance Costs." *The Journal of Risk and Insurance* 72: 359-374.

Lester, David. 2000. "Gun Availability and the Use of Guns for Suicide and Homicide in Canada," *Canadian Journal of Public Health* 91:186-187.

Lipsett, Seymour Martin 1990. *Continental Divide: The Values and Institutions in the United States and Canada*. New York: Routledge.

Ludwig, Jens and Phillip J Cook (Eds.) 2003. *Evaluating Gun Policy: Effects on Crime and Violence.* Washington D.C.: The Brookings Institution.

Makarios, Matthew D. and Travis C. Pratt. 2012. "The Effectiveness of Policies and Programs that Attempt to Reduce Firearm Violence: A Meta-Analysis." *Crime and Delinquency* 58: 222-244.

Royal Canadian Mounted Police. 2014. Canadian Firearms Program: Facts and Figures. Available at http://www.rcmp-grc.gc.ca/cfp-pcaf/facts-faits/index-eng.htm Retrieved 11/12/14.

Van Kesteren, J. N. 2014. "Revisiting the Gun Ownership and Violence Link: A Multilevel Analysis of Victimization Survey Data," *British Journal of Criminology* 54: 53-72.

Vernick, Jon S., James G. Hodges, Jr., and Daniel Webster. 2007. "The Ethics of Restrictive Licensing for Handguns: Comparing the United States and Canadian Approaches to Handgun Regulation." *Journal of Law, Medicine and Ethics* 35:668-678.

Wright, James D., Peter H. Rossi, and Kathleen Daly. 1983. *Under the Gun: Weapons, Crime, and Violence in America.* New York: Aldine Publishing.

Zimring, Franklin E. and Gordon Hawkins. 1997. *Crime is Not the Problem: Lethal Violence in America.* New York: Oxford University Press.

Suggested Periodicals

American Sociological Review

British Journal of Criminology

Crime and Delinquency

Criminology

Law and Society Review

Social Problems

Homicide Studies

Internet Sources

Bureau of Justice Statistics. http://www.bjs.gov/

Centers for Disease Control and Prevention. http://www.cdc.gov/injury/wisqars/

Federal Bureau of Investigation, Crime Statistics. http://www.fbi.gov/stats-services/crimestats

Statistics Canada. http://www.statcan.gc.ca/pub/85-002-x/2013001/article/11854-eng.htm

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

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

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
GEOL	A321		4	(3+3)

6. Complete Course Title
Mineralogy

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other CCG (please specify)
- ☐ 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/2016 To: 9999/

12. ☐ Cross Listed with

☐ Stacked with

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1.			
2.			
3.			

Initiator Name (typed): LeeAnn Munk

Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: _____
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: _____

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Crystallography including external form and internal order. Crystal chemistry, atomic structure, crystal structure, and compositional variation, nature and origin of physical properties of minerals. Mineral association, occurrence, and paragenesis. Introduction to x-ray crystallography and optical mineralogy. Laboratory includes determinative crystallography, optical mineralogy and systematic determinative mineralogy.

16a. Course Prerequisite(s) *(list prefix and number)*	16b. Test Score(s)	16c. Co-requisite(s) *(concurrent enrollment required)*
[GEOL A221, MATH A251, PHYS A124 (minimum grade C) and CHEM A105 (minimum grade C or concurrent enrollment)]	NA	NA

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
NA

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
In order for students to be best prepared for the content taught in GEOL A321 they will need to complete the first semester of calculus and a year of physics, both of which are already required for the BSGS.

Initiator (faculty only)	Date	☐ Approved ☐ Disapproved	Dean/Director of School/College	Date
LeeAnn Munk Initiator (TYPE NAME)				
☐ Approved ☐ Disapproved	Department Chairperson	Date	☐ Approved ☐ Disapproved	Undergraduate/Graduate Academic Board Chairperson	Date
☐ Approved ☐ Disapproved	Curriculum Committee Chairperson	Date	☐ Approved ☐ Disapproved	Provost or Designee	Date

Course Content Guide
University of Alaska Anchorage

GEOL A321
Mineralogy

I. Date of Initiation: Spring 2016

II. Course Information:

A. College or School: CAS
B. Course Subject: Geological Sciences
C. Course Number: A321
D. Number of Credits: 4.0 (3+3)
E. Course Program Title: Mineralogy
F. Grading Basis: A-F
G. Course Description: Crystallography including external form and internal order. Crystal chemistry, atomic structure, crystal structure, and compositional variation, nature and origin of physical properties of minerals. Mineral association, occurrence, and paragenesis. Introduction to x-ray crystallography and optical mineralogy. Laboratory includes determinative crystallography, optical mineralogy and systematic determinative mineralogy
H. Course Prerequisites: GEOL A221, MATH A200, PHYS A124 (minimum grade C) and CHEM A105 (minimum grade C or concurrent enrollment)
I. Registration Restrictions: none
J. Fee: yes

III. Instructional Goals and Student Outcomes:

A. Instructional Goals. The instructor will:

1) Present the concepts important in the study of mineralogy and guide students to an understanding of the principles and applications of mineralogy to geologic problems.
2) Present an introduction to crystallography and mineral chemistry.
3) Present the principles of optical mineralogy.
4) Present the principles of systematic determinative mineralogy of silicate and non-silicate minerals.
5) Provide laboratory assignments which require students to apply their knowledge of the physical and optical properties of minerals and identify a wide range of mineral samples.

B. Student Learning Outcomes. The students will be able to:

1) Classify the major mineral groups and identify major rock forming minerals from hand samples. **Assessment:** homework, lab assignments, quizzes, exams.

2) Discriminate between isotropic, uniaxial, and biaxial minerals in thin section and grain mounts. **Assessment:** homework, lab assignments, quizzes, exams.
3) Determine the fundamentals of crystal chemistry and illustrate the crystal structure of the major mineral groups. **Assessment:** homework, lab assignments, quizzes, exams.
4) Discriminate between the different types of optical figures in thin section. **Assessment:** homework, lab assignments, quizzes, exams.
5) Use Pauling's Rules to derive the cation/anion ratio and bond strength of major minerals. **Assessment:** homework, lab assignments, quizzes, exams.

IV. Course Evaluation

The evaluation is at the discretion of the instructor. The evaluation can include written and practical exams, quizzes, written exercises and problems, laboratory exercises, class discussion, special projects, and reading the scientific literature. Evaluation procedures are explained at the first class meeting.

V. Course Level Justification

This course provides students with content and problem solving skills that are utilized throughout other courses in the geology curriculum. Students are expected to learn advanced concepts and apply them deterministically over a wide range of applications in geology.

VI. Topical Course Outline

1. Mineral Chemistry
    a. Electronic structure of atoms
    b. Periodic table and atomic weights
    c. Bonding, ionic crystals and radii
    d. Pauling's Rules
    e. Ionic substitutions in crystals
2. Crystallography
    a. Crystal symmetry
    b. Unit cells
    c. Crystal systems
    d. Miller Indices
3. Optical mineralogy
    a. Properties of light transmission
    b. Velocity of light in crystals
    c. Refractive index of rock forming minerals
    d. Dispersion in minerals
    e. Polarized light in minerals
    f. Becke line method of determining refractive index
    g. Optical classes of minerals
    h. Birefringence in minerals

i. Uniaxial sign and interference figures
j. Biaxial Sign and Interference figures

4. Mineral classification
    a. Systematic determinative mineralogy (silicates)
    b. Systematic determinative mineralogy (non-silicates)

VII. Suggested Text(s)

Klein, C., and Dutrow, B., 2008, The 23rd edition of the manual of mineral science: New York, Wiley, 644 p.

Nesse, W. D., 2003, Introduction to optical mineralogy: New York, Oxford University Press, 370 p.

VIII. Bibliography

Blackburn, W. H., and W. H. Dennen, 1997, Encyclopedia of mineral names: The Canadian Mineralogist, Special Publication 1, Mineralogical Association of Canada, 368 p.

Deer, W.A., Howie, R.A. and Zussman, J., 1992, An Introduction to the Rock-Forming Minerals (2nd edition), London, Longman, 696 p.

Gunter, M.E., 2004, The polarized light microscope: Should we teach the use of a 19th century instrument in the 21st century?, Journal of Geoscience Education v. 52, p. 34-44.

Perkins, D., and Henke, K.R., 2000, Minerals in thin section. Upper Saddle River, Prentice Hall, 125 p.

Smith, W., Bupp, M., and Sethi, P.S., 2000, Design and development of an interactive, multimedia cd-rom for teaching and learning optical mineralogy, Virginia Journal of Science, v. 51, 116 p.

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

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

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
GEOL	A360		3	(3+0)

6. Complete Course Title
Geochemistry

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other CCG (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions
- ☐ General Education Requirement

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Spring/2016 To: Fall/9999

12. ☐ Cross Listed with

☐ Stacked with _____
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1.		
2.		
3.		

Initiator Name (typed): LeeAnn Munk Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: _____
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: _____

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Introduction to principles and applications of inorganic geochemistry. Emphasis on crystal structures and substitution in crystals, equilibrium geochemistry, dissociation of acids and bases, and mineral stability. Applying the laws of thermodynamics, Eh-pH diagrams, and oxidation-reduction reactions to geologic problems. Principles of radioactivity and geochronometers for age determination. A review of applications of stable isotopes to geologic problems.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
CHEM A106, MATH A251, GEOL A322 (all with minimum grade of C)

16b. Co-requisite(s) *(concurrent enrollment required)*

16c. Automatic Restriction(s)
☐ College ☒ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Students will be best prepared by completing GEOL A322 and MATH A251 prior to enrollilng in GEOL A360. Both GEOL A322 and MATH A200 are required so this change will not impact the total number of credits the students are required to take for the degree.

Initiator (faculty only)	Date	☐ Approved ☐ Disapproved	Dean/Director of School/College	Date
LeeAnn Munk Initiator (TYPE NAME)				
☐ Approved ☐ Disapproved	Department Chair	Date	☐ Approved ☐ Disapproved	Undergraduate/Graduate Academic Board Chair	Date
☐ Approved ☐ Disapproved	College/School Curriculum Committee Chair	Date	☐ Approved ☐ Disapproved	Provost or Designee	Date

Course Content Guide
University of Alaska Anchorage

GEOL A360
Geochemistry

I. Date of Initiation: Spring 2016

II. Course Information:

A. College or School: CAS
B. Course Subject and Number: GEOL A360
C. Number of Credits: 3.0 (3+0)
D. Course Title: Geochemistry
E. Grading Basis: A-F
F. Course Description: Introduction to principles and applications of inorganic geochemistry. Emphasis on crystal structures and substitution in crystals, equilibrium geochemistry, dissociation of acids and bases, and mineral stability. Applying the laws of thermodynamics, Eh-pH diagrams, and oxidation-reduction reactions to geologic problems. Principles of radioactivity and geochronometers for age determination. A review of applications of stable isotopes to geologic problems.
G. Status of Course Relative to Degree Program: Required course for BSGS major.
H. Course Fees: no
I. Lab Fees: no
J. Coordination: UAA faculty list-serv
K. Cross-listing: none
L. Course Prerequisites: CHEM A106, MATH A251, GEOL A322 (all with minimum grade C)
M. Restrictions: none

III. Instructional Goals and Student Outcomes:

A. Instructional Goals. The instructor will:
    1) Present the use of geological and chemical principles to solve geochemistry problems.
    2) Demonstrate the applications of geochemistry to solving relevant problems in the earth sciences.
    3) Prompt students to utilize problem solving skills gained from their training in both the geological sciences and chemistry to understand the integration and application of the two sciences.

B. Student Learning Outcomes. The students will:
    1) Demonstrate the geochemical differentiation of the Earth using physical and chemical principles, and diagram the distribution of chemical elements in rocks of the Earth. **Assessment:** homework and exams.

2) Diagram the periodic properties of the elements and integrate the principles of atomic structure with chemical bonding, crystal structure and elemental substitution in minerals. **Assessment:** homework and exams.
3) Develop a thorough knowledge of equilibrium geochemistry and apply it to processes such as solubility, weathering, and effects of redox in aqueous environments. **Assessment:** homework and exams.
4) Derive the thermodynamic equations for mineral stability and construct mineral stability/solubility diagrams and apply the results to real world geologic situations. **Assessment:** homework and exams.
5) Derive the Law of Radioactivity and apply it to the decay of radioactive elements used to solve geologic problems and generate geochronometry equations and graphical displays for age determination. **Assessment:** homework and exams.
6) Develop a working knowledge of stable isotope systematics and apply to geologic, water, and climate systems. **Assessment:** homework and exams.

IV. Course Evaluation

Student learning will be assessed through in-class participation, homework, and exams.

V. Course Level Justification

This course requires a year of 100 level chemistry, one semester of calculus and 300 level geological sciences courses. This course provides students with content and problem solving skills that utilize chemistry and geologic concepts learned in other courses in the geological sciences, chemistry, and math curriculum. Students are expected to analyze geochemical data and utilize it for problem solving in earth systems science applications.

VI. Topical Course Outline

1. Introduction to geochemistry
    a. The history of the development of geochemistry as a science
    b. Early applications and modern applications of geochemistry
    c. Strengths and limitations of geochemical modelling
2. Basics of atomic physics
    a. Electronic structure of atoms
    b. Periodic table and atomic weights
    c. Bonding, ionic crystals and radii
    d. Ionic substitutions in crystals
3. Aqueous geochemistry and mineral stability
    a. Acids, bases, and salts
    b. Chemical equilibria
    c. Law of Mass Action
    d. Dissociation of weak acids and bases

    e. pH control of dissociation equilibria
    f. Solubility of amorphous silica
    g. Solubility of salts and hydrolysis
    h. Activities and concentrations
    i. Carbonate equilibria
    j. Dissolution of aluminosilicates and silicates
4. Review of thermodynamics
    a. Laws of Thermodynamics
5. Mineral Stability Diagrams
    a. Congruent and incongruent dissolution
    b. Common rock forming minerals
    c. Weathering of sulfide ores
6. Oxidation – Reduction reactions
    a. Principles of redox
    b. Eh – pH diagrams
7. Geochronometry
    a. Law of Radioactivity
    b. Radioactive Decay Modes
    c. Isotope geochronometers
    d. Methods of Dating
8. Stable isotopes
    a. Hydrogen and oxygen in the hydrologic cycle
    b. Climate change

VII. Suggested Text(s)

Albarede, F., 2009. Geochemistry, an introduction, 2nd edition: Cambridge University Press, 365p.

Faure, G., 1998. Principles and Applications of Geochemistry, 2nd ed., Prentice Hall, 600p.

Misra, K.C., 2012. Introduction to Geochemistry. Wiley-Blackwell, 438p.

VIII. Bibliography

Bowen, N.L., 1908. The evolution of igneous rocks. Princeton University Press, Princeton, N.J., 332p.

Brownlow, A.H., 1996. Geochemistry, 2nd ed., Prentice Hall, 580p.

Drever, J.I., 2000. The Geochemistry of Natural Waters: Surface and Groundwater Environments, 3rd ed., Prentice Hall, 436p.

Faure, G., and Mensing, T., 2007. Principles and Applications of Isotopes, 3rd ed. Wiley, New York, 589p.

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

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

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
GEOL	A361		3	(3+0)

6. Complete Course Title
Earth Resources and Society

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions
- ☐ General Education Requirement

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Spring/2016 To: Fall/9999

12. ☐ Cross Listed with

☐ Stacked with _____ Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1.		
2.		
3.		

Initiator Name (typed): LeeAnn Munk Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: _____
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: _____

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☒ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
A global scale investigation of the state of water, energy and mineral resources and the linkages to society and the environment. Review of historical sources, uses, and demands on water, energy and mineral resources and the connection to human population growth over time. Investigation of the scientific and social motivations for shifting how humans use water, energy, and mineral resources.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
GEOL A111 or GEOL A115 or GEOL A121 or GEOL A221 (minimum grade C) and ENVI A211 or A212 (minimum grade C)

16b. Co-requisite(s) *(concurrent enrollment required)*

16c. Automatic Restriction(s)
☐ College ☐ Major ☒ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*
Junior standing; completion of Tier 1 GER courses required

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Currently the Department of Geological Sciences offers only one capstone GER course. This course will provide an additional option for the students at UAA to explore very timely and important integrative topics related to Earth resources and society. The course will require a basic foundation in geological sciences as well as environmental studies to allow the students to bring together the information and skills learned in those lower divison courses and apply in an integrative manner as a culminating GER learning experience.

Initiator (faculty only) Date		☐ Approved ☐ Disapproved	Dean/Director of School/College Date
Initiator (TYPE NAME)			
☐ Approved ☐ Disapproved	Department Chair Date	☐ Approved ☐ Disapproved	Undergraduate/Graduate Academic Board Chair Date
☐ Approved ☐ Disapproved	College/School Curriculum Committee Chair Date	☐ Approved ☐ Disapproved	Provost or Designee Date

Course Content Guide
University of Alaska Anchorage
GEOL A361
Earth Resources and Society

I. Date of Initiation: Spring 2016

II. Course Information:

A. College or School: CAS
B. Course Prefix: GEOL
C. Course Number: A361
D. Number of Credits: 3.0
E. Contact Hours: 3+0
F. Course Title: Earth Resources and Society
G. Grading Basis: A-F
H. Implementation Date: Spring 2016
I. Course Description: A global scale investigation of the state of water, energy and mineral resources and the linkages to society and the environment. Review of historical sources, uses, and demands on water, energy and mineral resources and the connection to human population growth over time. Investigation of the scientific and social motivations for shifting how humans use water, energy, and mineral resources.
J. Course Fees: no
K. Cross-listing: none
L. Course Prerequisites: GEOL A111 or GEOL A115 or GEOL A121 or GEOL A221 (with minimum grade of C) and ENVI A211 or ENVI A212 (with minimum grade of C)
M. Restrictions: Junior standing; completion of Tier 1 GER courses is required

III. Instructional Goals and Student Outcomes:

A. Instructional Goals. The instructor will:
    1) Provide the conceptual framework for the occurrence of Earth resources on the planet including laying the foundation of where water, energy and mineral resources occur in terms of geologic settings.
    2) Describe the patterns of human population on Earth and the general uses and demands of society on water, energy and mineral resources over time including describing shifts from ancient to modern types of resources.
    3) Discuss the general social connections to the use of water, energy and mineral resources including major topics such as the links of resources to politics.
    4) Prompt students to investigate historical and modern cases of the integrative aspects of Earth resources and society. Topics will be focused on how single or multiple resources have transformed society in positive and negative ways.

5) Teach students how to evaluate information and data from different sources and perspectives.

B. Student Learning Outcomes. The students will:

1) Demonstrate a basic understanding of the uneven distribution of water, energy, and mineral resources as well as humans on Earth over time. **Assessment:** Homework and quizzes.
2) Assess the positive and negative aspects of resource distribution and availability to humans and the most important effects this has on society. **Assessment:** Reports and presentations on specific topics of the students' interest guided by the instructor.
3) Critically integrate the aspects learned in outcomes 1) and 2) to a historical and a modern case study of the connections between Earth resources and society. **Assessment:** Reports on the links and/or differences in resource use in the past and in the modern. Students will work in groups based on interest in a single or a group of resources.
4) Effectively describe the future outlook of Earth resources and society in terms of the historical and modern framework and suggest potential alternatives as solutions to future needs. **Assessment:** Final individual presentations and essays.

IV. Course Level Justification

Students are required to learn and integrate information across the scientific literature as it relates to society. They will read, comprehend, and apply ideas and data in a synthetic manner to apply the course materials and objectives to address significant linkages between Earth resources and society.

GER Integrative Capstone Justification:

1. Knowledge Integrations/Interrelationships and synergy among GER disciplines: This course focuses on the interface of Earth resources and the relevance and relationship to society. The utilization of and reliance on Earth resources (water, energy, and minerals) by humans is an overall theme of this course.

2. Effective communication skills: Student and course success demands effective communication through homework, quizzes, presentations, and essays.

3. Critical Thinking: Students will be successful if they are able to integrate information across disciplines and critically evaluate data types and quality and different positions presented in class and class materials including popular viewpoints in the media.

4. Information literacy: In order to obtain relevant information for this course the students will need to successfully search different sources for papers, data, and reports. This will include going beyond the textbooks and readings posted by the instructor to include utilization of the Internet to find the most comprehensive information on topics

relevant to the course. Effectively searching and deciphering the scientific literature through library and internet resources as well as collecting information from more general public sources sub as TV, Web, and popular news sources. Students will demonstrate that they can decipher the fundamental differences and quality of the scientific sources as compared to public sources.

5. Quantitative Perspectives: A critical and scientific understanding of Earth resources requires that students can digest quantitative concepts such as the geologic occurrence of resources on the planet and how we determine their general availability to society. Students must also be able to read and decipher scientific and social data presented in various formats including tables, graphs, and models as well as to take data and present it in standard scientific formats to illustrate general relationships.

6. Evolving realities of the 21st Century: One of the most important issues that humans are faced with is the future of the availability of Earth resources and how our reliance on these resources may shift from conventional to unconventional resources and what that means for society. For example, conventional oil and gas are on a global decline therefore we are moving towards exploration and use of more unconventional hydrocarbon sources such as shale oil and gas. This shift brings with it a new set of problems that society must deal with including new engineering and environmental issues as well as development in new regions of the planet. These types of examples also exist for water and minerals. The potential for irreversible impacts of Earth resource development on society is a major topic in scientific, political and social arenas.

V. Topical Course Outline

1. Introduction to the Origin of Earth Resources
    a. Water
    b. Energy (fossil and non-fossil)
    c. Minerals (metallic and non-metallic)
2. History of Uses, Social and Environmental Impacts of Earth Resource
    a. Use of Earth resources through time
    b. Major social impacts through time
    c. Major environmental impacts through time
    d. Modern trends in the use of Earth resources and human population on a global scale
3. Water Resources
    a. General distribution – Hydrologic Cycle
    b. Uses
    c. Potential water problems
        i. Availability to society
        ii. Water quality
        iii. Water management
    d. Large-scale transportation and diversion systems

4. Fossil Energy Resources
    a. Distribution of fossil energy sources (conventional and unconventional)
        i. Oil and gas
        ii. Coal
        iii. Nuclear
    b. Uses
    c. Environmental aspects of fossil energy (extraction and production)
    d. Future fossil fuel resources and needs of society
5. Non-fossil or renewable energy sources
    a. Types of Energy
        i. Wind and solar
        ii. Hydrologic
        iii. Biomass
        iv. Geothermal
    b. Uses
    c. Environmental aspects of renewable energy sources (extraction and production)
    d. Future renewable energy resources and needs of society
6. Mineral Resources
    a. History of metal resources and geologic occurrences
    b. Abundant metals and uses
    c. Scarce and technologically important metals and uses
    d. Non-metallic mineral resources
    e. Historical global trends in mineral use and consumption as it relates to human population
    f. Transformation of society as it relates to mineral resources
        i. Technology
        ii. Industry
        iii. Global economy
7. Future and Sustainability of Earth Resources in 21st Century
    a. Water – where, when, how?
    b. Energy – where, when, how?
    c. Minerals – where, when, how?

VI. Suggested Text(s)

Craig, J.R., Vaughan, D.J., Skinner, B.J., 2011. Earth Resources and the Environment, Prentice Hall, 508p.

Worldwatch Institute, 2013. State of the World: Is Sustainability Still Possible? ISBN: 9781610914499.

VII. Example Bibliography

Chiras, D.D., and Reganold, J.P., 2010. Natural Resource Conservation: Management for a Sustainable Future, 10/E.

Donahue, J., and Johnston, B., 1998. Water, Culture, and Power: Local Struggles in a Global Context, Island Press.

Klare, M.T., 2002. Resource Wars: The new landscape of global conflict, Holt and Company.

Rogers, J.J.W., and Feiss, P., 1998. People and the Earth: Basic Issues in the Sustainability of Resources and Environment, Cambridge University Press.

Worldwatch Institute, Vision for a Sustainable World. Online programs, blogs, and media, webpage visited February 2015: http://www.worldwatch.org/.

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

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

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
GEOL	A431	A431	3	(2+1)

6. Complete Course Title
Stratigraphy and Sed Petrology

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☒ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other CCG (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions
- ☐ General Education Requirement

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2016 To: /9999

12. ☐ Cross Listed with

☐ Stacked with

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Geological Sciences	3/1/2015	K. Crossen
2.		
3.		

Initiator Name (typed): Jennifer Aschoff Initiator Signed Initials: _____ Date: _____

13b. Coordination Email Date: _____
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: _____

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Introduction to stratigraphy of clastic and carbonate rocks including common environments of deposition, sedimentary rock classification, sedimentary rock fabric identification and interpretation, petrographic inspection and correlation techniques.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
GEOL A430 with score of C or higher
GEOL A 321with score of C or higher, or concurrent enrollment

16b. Co-requisite(s) *(concurrent enrollment required)*

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Adding basic sedimentary petrology course content to existing stratigraphy course in order to reduce required credits for Geology degree.

Initiator (faculty only) Date
Jennifer Aschoff
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chair Date

☐ Approved
☐ Disapproved
College/School Curriculum Committee Chair Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chair Date

☐ Approved
☐ Disapproved
Provost or Designee Date

Course Content Guide
University of Alaska Anchorage

GEOL A431
Stratigraphy and Sed Petrology

I. Date of Initiation: Spring 2015

II. Course Information

A. College: CAS
B. Course Subject: Geological Sciences
C. Course Number: GEOL A431
D. Number of Credits: 3.0 (2+1)
E. Course Title: Stratigraphy and Sed Petrology
F. Grading Basis: A-F
G. Course Description: Introduction to stratigraphy of clastic and carbonate rocks including common environments of deposition, sedimentary rock classification, sedimentary rock fabric identification and interpretation, petrographic inspection and correlation techniques.
H. Course Prerequisites: GEOL A430 with score of C or higher; GEOL A321 with score of C or higher, or concurrent enrollment
A. Fee: Yes

III. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will:
   1. Deliver interactive, multi-media lectures, collaborative in-class exercises and laboratory exercises on the topics listed in the course description and course outline.
   2. Incorporate real-world datasets in hands-on exercises that reflect typical tasks a geoscience professional would complete as part of their job.

B. Student Learning Outcomes and Evaluation. The students will:

Student Learning Outcomes	Evaluations
Describe and classify sedimentary rocks (sandstone, limestone and shale) using a range of widely accepted classification schemes in hand specimens and thin-sections.	In-class and Laboratory exercises
Analyze data to interpret depositional environments in clastic and carbonate systems, and synthesize observations to reconstruct past depositional systems.	Exercises and Exam(s)
Articulate stratigraphic observations and interpretations to peers.	Collaborative Exercises and Presentations

IV. Course Evaluations

Based on grades received on in-class exercises, laboratory exercises, exam(s) and presentations.

V. Course Level Justification

This course builds on Mineralogy (GEOL A321) and Sedimentology (GEOL A430) by providing additional opportunities for students to apply skills acquired in these courses, learn new skill in stratigraphy and sedimentary petrology, and synthesize concepts from sedimentology, mineralogy, stratigraphy and sedimentary petrology. Stratigraphy and introductory-level sedimentary petrology are typically taught at the 400 level.

VI. Topical Course Outline

A. Pre-test and Review Sedimentology Core Concepts

B. Survey of Clastic Depositional Environments
   1. Alluvial
   2. Eolian
   3. Shelf to Slope System
   4. Shelfal: Regressive Marginal Marine
   5. Shelfal: Transgressive Marginal Marine
   6. Slope to Basin-floor: Deep Marine
   7. Sedimentology and Formation of Mudrocks
   8. Application: Paleo-environmental Control on Porosity/Permeability in clastics

C. Survey of Carbonate Depositional Environments
   1. Platform Carbonates
   2. Ramp Carbonates
   3. Tidal Carbonate Systems
   4. Reef Carbonate Systems
   5. Carbonate Compensation Depth Concept
   6. Dolomitization
   7. Application: Paleo-environmental and Dolomite Crystal Size Control on Porosity/Permeability in carbonate rocks

D. Facies Concept

E. Survey of Ichnology

F. Introduction to Petrology of Sedimentary Rocks
   1. Clastic Rock Identification and Classification Schemes: Basic application using hand specimens, outcrop, core, cuttings, and thin-section
   2. Carbonate Rock Identification and Classification Schemes: Basic application using hand specimens, and thin-section
   3. Identification of Basic Clastic and Carbonate Grain-types and Fabrics in thin section

4. Interpretation of Sedimentary Rock Fabrics in Clastic Rocks: Basic application using hand specimens, outcrop, core, and thin-section
5. Interpretation of Sedimentary Rock Fabrics in Carbonate Rocks: Basic application using hand specimens, outcrop, core, and thin-section

G. Fundamental Laws of Stratigraphy
   1. Superposition
   2. Horizontality
   3. Walther's Law
   4. Steno's Law
   5. Unconformity vs. Diastem

H. Survey of Sedimentary Basin Types and Their Formation
   1. Thermal Basins and Passive Margins
   2. Flexural Basins
   3. Extensional Basins
   4. Dynamic (Mantle-controlled) Basins

I. Stratigraphic Correlation
   1. Lithostratigraphy Concept
   2. Biostratigraphy Concept
   3. Sequence Stratigraphy Concept
   4. Subsurface Data
   5. Basic Subsurface Sequence-stratigraphic Correlation

VIII. Required Text

Boggs, S., (2012). Principles of Sedimentology and Stratigraphy, Fifth Edition, Pearson Prentice Hall Press, Upper Saddle River, NJ, 585 pp.

VIII. Bibliography (* Indicates a Classic Text)

Allen, P.A. and Allen, P.A., 1990, Basin Analysis- Principles and Applications, Oxford-Blackwell Scientific Publications, 451 pp.

Catuneanu, O., 2002, Sequence stratigraphy of clastic systems: concepts, merits, and pitfalls Journal of African Earth Sciences, v. 35, no. 1, p. 1-43.

Catuneanu, O., 2006, Principles of sequence stratigraphy, Elsevier New York, 375 p.

*Campbell C., 1967, Lamina, Laminaset, Bed and Bedset; Sedimentology, v. 8, p.7-26.

Embry, A., 2002, Transgressive-Regressive (T-R) Sequence Stratigraphy, Gulf Coast Association of Geological Societies Transactions, v. 52, p. 151 – 172.

Handford, C. R., and R. G. Loucks, 1993, Carbonate Depositional Sequences and Systems Tracts - Responses of Carbonate Platforms to Relative Sea-level Changes, *in* R. G. Loucks and J. F. Sarg, eds., Carbonate Sequence Stratigraphy: AAPG Memoir 57, p.3-42.

Miall, A.D., 1999, In Defense of Facies Classifications and Models, Journal of Sedimentary Research: v. 69, no. 1, p. 2-5.

Schlager, W., 2005, Carbonate Sedimentology and Sequence Stratigraphy; SEPM Concepts in Sedimentology and Paleontology #8, 200 p.

*Sloss, L.L., 1963, Sequences in the Cratonic Interior of North America: GSA Bulletin, v. 74, p. 93-113.

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

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

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
GEOL	A436	n/a	3	(3+0)

6. Complete Course Title
Survey of Petroleum Geology

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other CCG (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions
- ☐ General Education Requirement

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Spring/2016 To: /9999

12. ☐ Cross Listed with _____
☒ Stacked with A636 Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Geological Sciences	3/1/2015	K. Crossen
2.		
3.		

Initiator Name (typed): Jennifer Aschoff Initiator Signed Initials: _____ Date: _____

13b. Coordination Email Date: _____
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: _____

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Formation of hydrocarbons, their migration/accumulation in the context of the petroleum system, and their exploration/exploitation. Includes an introduction to subsurface datasets used in the petroleum industry and how to integrate them. Conventional and unconventional petroleum systems are discussed in the class using examples from Alaska and around the world.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
GEOL A221 with score of C or higher

16b. Co-requisite(s) *(concurrent enrollment required)*

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Adding new course in Petroleum Geology based on demand from students and local industry.

Initiator (faculty only) Date
Jennifer Aschoff
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chair Date

☐ Approved
☐ Disapproved
College/School Curriculum Committee Chair Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chair Date

☐ Approved
☐ Disapproved
Provost or Designee Date

Course Content Guide
University of Alaska Anchorage

GEOL A436
Survey of Petroleum Geology

I. Date of Initiation: Spring 2015

II. Course Information

A. College: CAS
B. Course Subject: Geological Sciences
C. Course Number: GEOL A436
D. Number of Credits: 3.0 (3+0)
E. Course Title: Survey of Petroleum Geology
F. Grading Basis: A-F
G. Course Description: Formation of hydrocarbons, their migration/accumulation in the context of the petroleum system, and their exploration/exploitation. Includes an introduction to subsurface datasets used in the petroleum industry and how to integrate them. Conventional and unconventional petroleum systems are discussed in the class using examples from Alaska and around the world.
H. Course Prerequisites: GEOL A221
I. Fee: Yes

III. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will:
   1. Deliver interactive, multi-media lectures, collaborative in-class exercises and laboratory exercises on the topics listed in the course description and course outline.
   2. Incorporate real-world datasets in hands-on exercises that reflect typical tasks a geoscience professional would complete as part of their job in Petroleum Geology.

B. Student Learning Outcomes and Evaluation. The students will:

Student Learning Outcomes	Evaluations
Demonstrate basic knowledge of the process of hydrocarbon accumulation formation, exploration, exploitation and valuation.	In-class exercises and exams
Interpret basic subsurface data- seismic, well-log and core with a focus on key information needed to determine the presence, effectiveness and/or timing of various petroleum systems elements.	In-class exercises and exams
Synthesize and articulate the mechanics of the petroleum system and its constituent elements: source, reservoir, seal, trap and migration pathway.	Exams

IV. Course Evaluations

Based on grades received on exercises, exams, and in-class participation.

V. Course Level Justification

The course will to satisfy student interest and local oil/gas industry needs in the discipline of petroleum geology.

VI. Topical Course Outline

A. Reserves vs Resources
   1. World Energy Reserves
   2. Reserves Concept
   3. Reserves Calculation (OOIP and OGIP)
   4. Recovery, Recovery Factor, Estimated Ultimate Recovery (EUR) Calculation
   5. Geologic and Engineering Controls on Recovery Factors
   6. Petroleum System Overview
   7. Petroleum Terminology: System, Play Fairway, Play, Lead, Prospect
   8. Unconventional vs Conventional Systems

B. Hydrocarbon Generation and Source Rocks
   1. Kerogen and Kerogen Types
   2. Measuring Source Rock Quality: Pyrolysis, TOC, HI, S1, S2, S3
   3. Controls on Source Rock Quality
   4. Burial and Thermal Maturation
   5. Geothermal Gradients and Basin Type

C. Hydrocarbon Migration
   1. Carrier Beds and Migration Pathways
   2. Using Structure Maps to Understand Migration (“Spider Maps”)
   3. Review Contouring Structure Maps
   4. Fill-Spill, Fill-Leak
   5. Primary vs Secondary Migration
   6. Gas, Oil, Water Contacts

D. Subsurface Data Interpretation
   1. Seismic Data Acquisition
   2. Distinguishing Noise in Seismic
   3. Seismic Interpretation
   4. Well-log Acquisition
   5. Well-log Interpretation

E. Reservoirs
   1. Review Porosity and Permeability
   2. Primary vs. Secondary Porosity
   3. Depositional Environment Controls on Porosity and Permeability

4. Diagenetic Controls on Porosity and Permeability
5. Interpreting Reservoir Quality from Well-log Data
6. Review Isopach Maps
7. Flow Unit Concept and Defining Flow Units
8. Concept of Reservoir Connectivity
9. Using Decline Curves and Other Engineering Data to Interpret Reservoir Connectivity

F. Basic Well Drilling and Completion
   1. Modern Drilling and Completion Techniques
   2. Drilling/Completing Shale

VIII. Required Texts

Selly and Sonnenberg, 2014, Elements of Petroleum Geology (third edition), Elsevier, 526 p. ISBN: 978-0-12-386031-6

VIII. Bibliography (*Indicates Classic Text)

*Asquith, G.B., 1982, Basic Well Log Analysis for Geologists, AAPG Methods in Exploration Series, No. 3, 216 pp.

Evenick, J., 2008, Introduction to well logs and subsurface maps, Penwell Publishing, 236 pp.

Magoon, L. B, W. G. Dow, 1994, The petroleum system—from source to trap: AAPG Memoir 60, 64 pp.

Magoon, L. B, W. G. Dow, 1999, Leslie B. Magoon and Edward A. Beaumont, in Exploring for Oil and Gas Traps, Edward A. Beaumont and Norman H. Foster, eds., Treatise of Petroleum Geology, Handbook of Petroleum Geology 12 p.

McCarthy, K., Niemann, M., Palmowski, D., Peters, K., and Stankiewicz, A., 2011, Basic Petroleum Geochemistry for Source Rock Evaluation: Oilfield Review, v. 23, no. 2.

Posamentier, H.W., Allen, G.P., 1999, Siliciclastic sequence stratigraphy-concepts and applications, SEPM Special Publications 7, 210 pp.

Prosser, D.J., Maskall, R., 1993, Permeability Variation within Aeolian Sandstones: A Case Study Using Core Cut Sub-parallel to Slipface Bedding, The Auk Field, central North Sea, In: C.P. North, D.J. Prosser eds., Characterization of Fluvial and Aeolian Reservoirs, Geological Society of London Special Publication 73, p. 377-398.

*Sarg, J.F., 1988, Carbonate Sequence Stratigraphy. SEPM Special Publication No. 42, p. 155-181.

Slatt, R., 2008. Stratigraphic Reservoir Characterization for Petroleum Geologists, Geophysicists and Engineers, Cubitt, J. eds, Elsevier, San Francisco, CA, 478 pp.

White, D.A., 1993, Geologic Risking Guide for Prospects and Plays: AAPG Bulletin no 77, p. 2048-2061.

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

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

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
GEOL	A636	n/a	3	(3+0)

6. Complete Course Title
Petroleum Geology

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other CCG (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions
- ☐ General Education Requirement

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Spring/2016 To: /9999

12. ☐ Cross Listed with

☒ Stacked with A436 _____ Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Geological Sciences	3/1/2015	K. Crossen
2.		
3.		

Initiator Name (typed): Jennifer Aschoff Initiator Signed Initials: _____ Date: _____

13b. Coordination Email Date: _____
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: _____

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Introduction to the formation of hydrocarbons, their migration/accumulation in the context of the petroleum system, and their exploration/exploitation. Includes an introduction to subsurface datasets used in the petroleum industry and how to integrate them. Conventional and unconventional petroleum systems are discussed in the class using examples from Alaska and around the world.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*

16b. Co-requisite(s) *(concurrent enrollment required)*

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☒ Level

16d. Registration Restriction(s) *(non-codable)*
Graduate Standing

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Adding introductory course in Petroleum Geology based on student demand

Initiator (faculty only) Date
Jennifer Aschoff
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chair Date

☐ Approved
☐ Disapproved
College/School Curriculum Committee Chair Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chair Date

☐ Approved
☐ Disapproved
Provost or Designee Date

Course Content Guide
University of Alaska Anchorage

GEOL A636
Petroleum Geology

I. Date of Initiation: Spring 2015

II. Course Information

A. College: CAS
B. Course Subject: Geological Sciences
C. Course Number: GEOL A636
D. Number of Credits: 3.0 (3+0)
E. Course Title: Petroleum Geology
F. Grading Basis: A-F
G. Course Description: Introduction to the formation of hydrocarbons, their migration/accumulation in the context of the petroleum system, and their exploration/exploitation. Includes an introduction to subsurface datasets used in the petroleum industry and how to integrate them. Conventional and unconventional petroleum systems are discussed in the class using examples from Alaska and around the world.
H. Registration Restriction: Graduate Standing
I. Fee: Yes

III. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will:
   1. Deliver interactive, multi-media lectures, collaborative in-class exercises and laboratory exercises on the topics listed in the course description and course outline.
   2. Incorporate real-world datasets in hands-on exercises that reflect typical tasks a geoscience professional would complete as part of their job in Petroleum Geology.

B. Student Learning Outcomes and Evaluation. The students will:

Student Learning Outcomes	Evaluations
Demonstrate understanding of the basic process of hydrocarbon accumulation formation, exploration, exploitation and valuation.	In-class exercises and exams
Interpret subsurface data- seismic, well-log and core with a focus on key information needed to determine the presence, effectiveness and/or timing of various petroleum systems elements.	In-class exercises and exams
Associates and articulates the elements of the petroleum system as they pertain to their core discipline in the form of an integrative research project.	Final Research Project

Synthesize and articulate the mechanics of the petroleum system and its constituent elements: source, reservoir, seal, trap and migration pathway.	Exams

IV. Course Evaluations

Based on grades received on exercises, exams, and in-class participation.

V. Course Level Justification

This course provides students with fundamental skills in petroleum geology. It is typically taught as an upper-level undergraduate (400) or graduate course (600) at other institutions. The class is stacked with a 400-level (Geol 436) for undergraduate students. The 600-level course requires a rigorous, individual research project where students generate and interpret a dataset that applies two or more course concepts.

VI. Topical Course Outline

A. Reserves vs Resources
   1. World Energy Reserves
   2. Reserves Concept
   3. Reserves Calculation (OOIP and OGIP)
   4. Recovery, Recovery Factor, Estimated Ultimate Recovery (EUR) Calculation
   5. Geologic and Engineering Controls on Recovery Factors
   6. Petroleum System Overview
   7. Petroleum Terminology: System, Play Fairway, Play, Lead, Prospect
   7. Unconventional vs Conventional Systems

B. Hydrocarbon Generation and Source Rocks
   1. Kerogen and Kerogen Types
   2. Measuring Source Rock Quality: Pyrolysis, TOC, HI, S1, S2, S3
   3. Controls on Source Rock Quality
   4. Burial and Thermal Maturation
   5. Geothermal Gradients and Basin Type

C. Hydrocarbon Migration
   1. Carrier Beds and Migration Pathways
   2. Using Structure Maps to Understand Migration (“Spider Maps”)
   3. Review Contouring Structure Maps
   4. Fill-Spill, Fill-Leak
   5. Primary vs Secondary Migration
   6. Gas, Oil, Water Contacts

D. Subsurface Data Interpretation
   1. Seismic Data Acquisition
   2. Distinguishing Noise in Seismic

3. Seismic Interpretation
4. Well-log Acquisition
5. Well-log Interpretation

E. Reservoirs
   1. Review Porosity and Permeability
   2. Primary vs. Secondary Porosity
   3. Depositional Environment Controls on Porosity and Permeability
   4. Diagenetic Controls on Porosity and Permeability
   5. Interpreting Reservoir Quality from Well-log Data
   6. Review Isopach Maps
   7. Flow Unit Concept and Defining Flow Units
   8. Concept of Reservoir Connectivity
   9. Using Decline Curves and Other Engineering Data to Interpret Reservoir Connectivity

F. Basic Well Drilling and Completion
   1. Modern Drilling and Completion Techniques
   2. Drilling/Completing Shale

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Posamentier, H.W., Allen, G.P., 1999, Siliciclastic sequence stratigraphy-concepts and applications, SEPM Special Publications 7, 210 pp.

Prosser, D.J., Maskall, R., 1993, Permeability Variation within Aeolian Sandstones: A Case Study Using Core Cut Sub-parallel to Slipface Bedding, The Auk Field, central North Sea, In: C.P. North, D.J. Prosser eds., Characterization of Fluvial and Aeolian Reservoirs, Geological Society of London Special Publication 73, p. 377-398.

*Sarg, J.F., 1988, Carbonate Sequence Stratigraphy. SEPM Special Publication No. 42, p. 155-181.

Slatt, R., 2008. Stratigraphic Reservoir Characterization for Petroleum Geologists, Geophysicists and Engineers, Cubitt, J. eds, Elsevier, San Francisco, CA, 478 pp.

White, D.A., 1993, Geologic Risking Guide for Prospects and Plays: AAPG Bulletin no 77, p. 2048-2061.

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

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

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
GEOL	A437		3	(3+0)

6. Complete Course Title
Dep Systems and Dynamic Strat

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other CCG (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions
- ☐ General Education Requirement

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2016 To: /9999

12. ☐ Cross Listed with _____
☒ Stacked with A637 Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Geological Sciences	3/1/2015	K. Crossen
2.		
3.		

Initiator Name (typed): Jennifer Aschoff Initiator Signed Initials: _____ Date: _____

13b. Coordination Email Date: _____
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: _____

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Advanced skills in sedimentary geology that can be applied in oil/gas, hydrology, and mining. Includes greater detail in depositional environments, characteristics of resultant sedimentary deposits, and sequence stratigraphy using various geologic datasets. Emphasis on hands-on application of course concepts in outcrop, core and well-log data.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
GEOL A221 with score of "C" or higher

16b. Co-requisite(s) *(concurrent enrollment required)*

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Adding new, hands-on course in depositional environments and stratigraphy that emphasises data interpretation and application.

Initiator (faculty only) Date
Jennifer Aschoff
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chair Date

☐ Approved
☐ Disapproved
College/School Curriculum Committee Chair Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chair Date

☐ Approved
☐ Disapproved
Provost or Designee Date

Course Content Guide
University of Alaska Anchorage

GEOL A437
Dep Systems and Dynamic Strat

I. Date of Initiation: Spring 2015

II. Course Information

A. College: CAS
B. Course Subject: Geological Sciences
C. Course Number: GEOL A437
D. Number of Credits: 3.0 (2+1)
E. Course Title: Dep Systems and Dynamic Strat
F. Grading Basis: A-F
G. Course Description: Advanced skills in sedimentary geology that can be applied in oil/gas, hydrology, and mining, and expose students to subsurface datasets. Includes the many environments in which sediment is deposited, characteristics of resultant sedimentary deposits, and the range of methods to interpret and correlate sedimentary deposits using various geologic datasets. Emphasis on hands-on core and well-log interpretation.
H. Course Prerequisites: GEOL A221 with grade of "C" or higher
A. Fee: Yes

III. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will:
   1. Deliver interactive, multi-media lectures, collaborative in-class exercises and laboratory exercises on the topics listed in the course description and course outline.
   2. Incorporate real-world datasets in hands-on exercises that reflect typical tasks a geoscience professional would complete as part of their job.

B. Student Learning Outcomes and Evaluation. The students will:

Student Learning Outcomes	Evaluations
describe and interpret paleohydraulic conditions from complex sedimentary structures and fabrics using outcrop and rock core	Exercises
interpret depositional environments from stratigraphic architectures, sedimentary structures/fabrics in outcrop and rock core	Exercises and Exam(s)
correlate well-logs and outcrop sections using sequence-stratigraphic methods	Collaborative In-class Exercises
articulate scientific interpretations to specialists	Presentations

IV. Course Evaluations

Based on grades received on in-class exercises, laboratory exercises, exam(s) and presentations.

V. Course Level Justification

This course builds on Historical Geology (Geol 221) by providing students with more advanced skills to make interpretations of complex sedimentary successions. Additionally, the course complements concepts in Sedimentology (Geol 430) and Stratigraphy (Geol 432) by enhancing student skills in sedimentology, while providing new skills in sequence stratigraphy, rock core description, outcrop description and subsurface data interpretation. It is typically taught as an upper-level undergraduate (400) or graduate course (600) at other institutions. The class is stacked with a 600-level (Geol 637) for graduate students.

VI. Topical Course Outline

A. Depositional System Concept
   1. Sedimentary Process and Product
   2. Facies Definition
   3. Facies Paleohydraulic Interpretation- Flow Regime Concept
   4. Depositional Environment vs. Depositional System
   5. Overview of Depositional Environments
   6. Modern Depositional Systems

B. Outcrop Interpretation
   1. Architectural Analysis in Fluvial-Lacustrine Outcrop
   2. Facies Definition and Interpretation in Outcrop

C. Depositional Environments in a Clastic Shelf to Slope System
   1. Shelfal: Regressive Marginal Marine
   2. Shelfal: Transgressive Marginal Marine
   3. Slope
   4. Basin floor and Offshore Mudstone
   8. Source-to-Sink Connection of Depositional Environments within a System

D. Depositional Environments in a Carbonate Platform System
   1. Platform Carbonates
   2. Reef Depositional Models

E. Sequence Stratigraphy
   1. Comparison of Sequence Stratigraphy to Lithostratigraphy
   2. Terminology
   3. Walther's Law
   4. History and Development from Seismic Stratigraphy
   5. Overview of Seismic and Well-log Data
   6. Application of Sequence Stratigraphy in Seismic Data

7. Application of Sequence Stratigraphy in Outcrop Data
8. Application of Sequence Stratigraphy in Well-log Data

F. Core Description
1. Drilling Wells and Taking Core
2. Defining Intervals to be Cored
3. Types of Core
4. Proper Handling and Care of Core
5. Core Description and Presentation of Core Data

G. Presenting Core Data
1. Creating a Poster to Display Scientific Data
2. Articulating Scientific Interpretations to Broad Audiences

VIII. Required Text

Catuneanu, O., 2006, Principles of Sequence Stratigraphy, Elsevier Science. ISBN 0444515682

VIII. Bibliography (*Indicates Classic Text)

Boyd, R., Suter, J., and Penland, S., 1989, Relation of sequence stratigraphy to modern sedimentary environments: Geology, v. 17, p.926-929.

Catuneanu, O., Willis, A., and Miall, A. D., 1998, Temporal significance of sequence boundaries: Sedimentary Geology, v. 121, p. 157-178.

Catuneanu, O., 2006, Principles of sequence stratigraphy, Elsevier New York, 375 p.

*Campbell C., 1967, Lamina, Laminaset, Bed and Bedset; Sedimentology, v. 8, p.7-26.

Embry, A. and Myers, J., 1996, Sequence Stratigraphy, Blackwell Science Ltd, Oxford, 297 p.

Embry, A., 2002, Transgressive-Regressive (T-R) Sequence Stratigraphy, Gulf Coast Association of Geological Societies Transactions, v. 52, p. 151 – 172.

*Fisher, W. L., and J. H. McGowan, 1967, Depositional systems in the Wilcox Group of Texas and their relationship to occurrence of oil and gas: Gulf Coast Assoc. of Geological Soc., Trans., v. 17, p.213-248.

Galloway, W.E., 1989, Genetic stratigraphic sequences in basin analysis: Architecture and genesis of flooding-surface bounded depositional units. AAPG Bulletin v. 73, p. 125–142.

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Jacquin, T., A. Arnaud-Vanneau, H. Arnaud, C. Ravenne, and P. R. Vail, 1991, Systems tracts and depositional sequences in a carbonate setting: a study of continuous outcrops from platform to basin at the scale of seismic lines: Marine and Petroleum Geology, v. 8, p.122-139.

*Jervey, M. T., 1988, Quantitative geological modeling of siliciclastic rock sequences and their seismic expression, in C. K. Wilgus, B. S. Hastings, C. G. St. C. Kendall, H. W. Posamentier, C. A. Ross, and J. C. Van Wagoner, eds., Sea-Level Changes: An Integrated Approach: SEPM Special Publication No. 42, p.47-69.

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*Kidwell, S.M., 1988, Reciprocal sedimentation &-correlative hiatuses in marine-paralic siliciclastis: Miocene outcrop evidence: Geology, v. 16, p. 609-612.

Leckie, D.A., Singh, C., Goodarzi, F., and Wall, J.H., 1990, Organic-rich, radioactive marine shale: a case study of a shallow-water condensed section, Cretaceous Shaftesbury Formation, Alberta, Canada: Journal of Sedimentary Petrology, v. 60, p. 101-117.

Miall, A. D., 1991, Stratigraphic Sequences and their Chronostratigraphic Correlation, Journal of Sedimentary Petrology, v. 61, no. 4, p. 497-505.

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*Mitchum, R. M., 1977, Seismic Stratigraphy and Global Changes of Sea Level, Part 11 : Glossary of terms used in seismic stratigraphy; in C. E. Payton, ed., Seismic Stratigraphy - Applications to Hydrocarbon Exploration: AAPG Memoir 26, p.205-212.

Mitchum, R. M., 1977, Seismic Stratigraphy and Global Changes of Sea Level, Part 2: The Depositional sequence as a basic unit for stratigraphic analysis; in C. E. Payton, ed., Seismic Stratigraphy - Applications to Hydrocarbon Exploration: AAPG Memoir 26, p.53-62.

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*Sloss, L.L., 1963, Sequences in the cratonic interior of North America: GSA Bulletin, v. 74, p. 93-113.

Schumm, S. A.., 1993, River Response to Baselevel Change: Implications for Sequence Stratigraphy. Journal of Geology, v. 101, p. 279-294.

*Vail, P. R., 1987, Seismic stratigraphy interpretation procedure, in A. W. Bally, ed. Atlas of seismic stratigraphy: AAPG Studies in Geol., no.27, p.1-10.

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Van Wagoner, J.C., 1990. Siliclastic sequence stratigraphy in well logs, cores and outcrops: AAPG Methods in Exploration Series no. 7, 55 p.

Walker, R.G. and James, N.P., 1992, Facies Models: Response to Sea Level Change 454 p.

*Wheeler, H.E., 1958, Time Stratigraphy: AAPG Bulletin, v. 42, no. 5, p. 1047-1063.Allen, P.A. and Allen, P.A., 1990, Basin Analysis- Principles and Applications, Oxford-Blackwell Scientific Publications, 451 pp.

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

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

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
GEOL	A637		3	(3+0)

6. Complete Course Title
Adv Dep Systems and Stratigraphy

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other CCG (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions
- ☐ General Education Requirement

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2016 To: /9999

12. ☐ Cross Listed with _____
☒ Stacked with A437 Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Geological Sciences	3/1/2015	K. Crossen
2.		
3.		

Initiator Name (typed): Jennifer Aschoff Initiator Signed Initials: _____ Date: _____

13b. Coordination Email Date: _____
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: _____

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Advanced skills in sedimentary geology that can be applied in oil/gas, hydrology, and mining. Includes greater detail in depositional environments, characteristics of resultant sedimentary deposits, and sequence stratigraphy using various geologic datasets. Emphasis on hands-on application of course concepts in outcrop, core and well-log data.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*

16b. Co-requisite(s) *(concurrent enrollment required)*

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☒ Level

16d. Registration Restriction(s) *(non-codable)*
Graduate Standing

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Adding new, hands-on course in depositional environments and stratigraphy that emphasises data interpretation and application.

Initiator (faculty only) Date
Jennifer Aschoff
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chair Date

☐ Approved
☐ Disapproved
College/School Curriculum Committee Chair Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chair Date

☐ Approved
☐ Disapproved
Provost or Designee Date

Course Content Guide
University of Alaska Anchorage

GEOL A637
Adv Dep Systems and Stratigraphy

I. Date of Initiation: Spring 2015

II. Course Information

A. College: CAS
B. Course Subject: Geological Sciences
C. Course Number: GEOL A637
D. Number of Credits: 3.0 (2+1)
E. Course Title: Adv Dep Systems and Stratigraphy
F. Grading Basis: A-F
G. Course Description: Advanced skills in sedimentary geology that can be applied in oil/gas, hydrology, and mining, and expose students to subsurface datasets. Includes the many environments in which sediment is deposited, characteristics of resultant sedimentary deposits, and the range of methods to interpret and correlate sedimentary deposits using various geologic datasets. Emphasis on hands-on core and well-log interpretation.
H. Registration Restrictions: Graduate Standing
I. Fee: Yes

III. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will:
   1. Deliver interactive, multi-media lectures, collaborative in-class exercises and laboratory exercises on the topics listed in the course description and course outline.
   2. Incorporate real-world datasets in hands-on exercises that reflect typical tasks a geoscience professional would complete as part of their job.

B. Student Learning Outcomes and Evaluation. The students will:

Student Learning Outcomes	Evaluations
Describe and interpret paleohydraulic conditions from complex sedimentary structures and fabrics using outcrop and rock core.	Exercises
Interpret depositional environments from stratigraphic architectures, sedimentary structures/fabrics in outcrop and rock core.	Exercises and Exam(s)
Correlate well-logs and outcrop sections using sequence-stratigraphic methods.	Collaborative In-class Exercises
Synthesize course concepts and integrate a range of subsurface data to deduce the depositional history	Exercises and Final Project
Articulate scientific interpretations to specialists.	Final Presentation

IV. Course Evaluations

Based on grades received on in-class exercises, laboratory exercises, exam(s) and presentations.

V. Course Level Justification

This course provides students with advanced skills in stratigraphy to make interpretations of complex sedimentary successions and application of sequence stratigraphy. It is typically taught as an upper-level undergraduate (400) or graduate course (600) at other institutions. The class is stacked with a 400-level (Geol A437) for undergraduate students. The 600-level course requires a rigorous, individual research project where students generate and interpret a dataset that applies two or more course concepts.

VI. Topical Course Outline

A. Depositional System Concept
   1. Sedimentary Process and Product
   2. Facies Definition
   3. Facies Paleohydraulic Interpretation- Flow Regime Concept
   4. Depositional Environment vs. Depositional System
   5. Overview of Depositional Environments
   6. Modern Depositional Systems

B. Outcrop Interpretation
   1. Architectural Analysis in Fluvial-Lacustrine Outcrop
   2. Facies Definition and Interpretation in Outcrop

C. Depositional Environments in a Clastic Shelf to Slope System
   1. Shelfal: Regressive Marginal Marine
   2. Shelfal: Transgressive Marginal Marine
   3. Slope
   4. Basin floor and Offshore Mudstone
   8. Source-to-Sink Connection of Depositional Environments within a System

D. Depositional Environments in a Carbonate Platform System
   1. Platform Carbonates
   2. Reef Depositional Models

E. Sequence Stratigraphy
   1. Comparison of Sequence Stratigraphy to Lithostratigraphy
   2. Terminology
   3. Walther's Law
   4. History and Development from Seismic Stratigraphy
   5. Overview of Seismic and Well-log Data
   6. Application of Sequence Stratigraphy in Seismic Data
   7. Application of Sequence Stratigraphy in Outcrop Data

8. Application of Sequence Stratigraphy in Well-log Data

F. Core Description
   1. Drilling Wells and Taking Core
   2. Defining Intervals to be Cored
   3. Types of Core
   4. Proper Handling and Care of Core
   5. Core Description and Presentation of Core Data

G. Presenting Core Data
   1. Creating a Poster to Display Scientific Data
   2. Articulating Scientific Interpretations to Broad Audiences

VIII. Required Text

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VIII. Bibliography (*Indicates Classic Text)

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

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

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
GEOL	A438	n/a	3	(3+0)

6. Complete Course Title
Advanced Sed Petrology

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other CCG (please specify)
- ☐ Course Number
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- ☐ Registration Restrictions
- ☐ General Education Requirement

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2016 To: /9999

12. ☐ Cross Listed with

☒ Stacked with 638

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
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2.		
3.		

Initiator Name (typed): Jennifer Aschoff Initiator Signed Initials: _____ Date: _____

13b. Coordination Email Date: _____
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: _____

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Advanced concepts in sedimentary petrography and petrology, including a survey of diagenesis. Topics include advanced rock classification, grain identification in thin section, cement identification, sedimentary fabric, paragenetic sequence and provenance analysis, and porosity estimation in carbonate and clastic sedimentary rocks. Emphasis on hands-on description, interpretation and applications.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
GEOL A431 with score of C or higher
GEOL A321 with score of C or higher

16b. Co-requisite(s) *(concurrent enrollment required)*

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Adding advanced course in advanced sedimentary petrology based on student interest and needs

Initiator (faculty only) Date
Jennifer Aschoff
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chair Date

☐ Approved
☐ Disapproved
College/School Curriculum Committee Chair Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chair Date

☐ Approved
☐ Disapproved
Provost or Designee Date

Course Content Guide
University of Alaska Anchorage

GEOL A438
Advanced Sedimentary Petrology and Diagenesis

I. Date of Initiation: Spring 2015

II. Course Information

A. College: CAS
B. Course Subject: Geological Sciences
C. Course Number: GEOL A438
D. Number of Credits: 3.0 (2+1)
E. Course Title: Advanced Sedimentary Petrology and Diagenesis
F. Grading Basis: A-F
G. Course Description: Advanced concepts in sedimentary petrography and petrology, including a survey of diagenesis. Topics include advanced rock classification, grain identification in thin section, cement identification, sedimentary fabric, paragenetic sequence and provenance analysis, and porosity estimation in carbonate and clastic sedimentary rocks. Emphasis on hands-on description, interpretation and applications.
H. Course Prerequisites: GEOL A331 with score of "C" or higher and GEOL A321 with score of "C" or higher
A. Fee: Yes

III. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will:
   1. Deliver interactive, multi-media lectures, collaborative in-class exercises and laboratory exercises on the topics listed in the course description and course outline.
   2. Incorporate real-world datasets in hands-on exercises that reflect typical tasks a geoscience professional would complete as part of their job.

B. Student Learning Outcomes and Evaluation. The students will:

Student Learning Outcomes	Evaluations
Identify, describe and interpret sedimentary grains in thin-section	Exercises
interpret depositional environments and provenance from thin section	Exercises and Exam(s)
Determine and classify various types of porosity, and delineate paragenetic sequences	Exercises and exams
Point count and interpret sedimentary provenance from point-count data	Exercises

IV. Course Evaluations

Based on grades received on in-class exercises, laboratory exercises, exam(s) and presentations.

V. Course Level Justification

This course builds on concepts presented in Sedimentology (Geol 430), Stratigraphy (Geol A431) by enhancing student skills in sedimentology, while providing new skills in thin-section inspection and advanced sedimentary petrology. It is typically taught as an upper-level undergraduate (400) or graduate course (600) at other institutions. The class is stacked with a 600-level (Geol A638) for graduate students.

VI. Topical Course Outline

A. Review of Microscopes and Optical Mineralogy
   1. Optics
   2. Identification of Sedimentary Grain Types
   3. Components of Sedimentary Rocks
   4. Common Applications of Sedimentary Petrology

B. Framework Composition and Classification of Sandstone
   1. Common Sandstone Types
   2. Provenance Analysis
   3. Point Counting

C. Cements and Diagenesis of Sandstone
   1. Physical Diagenesis/Compaction
   2. Compaction Textures and Their Interpretation
   3. Cement Types and Their Identification
   4. Chemical Diagenesis- Cementation, Paragenesis and Authigenesis
   3. Porosity Measurement from Thin Section
   4. Porosity Classification

D. Composition and Classification of Shale
   1. Grain Types
   2. Mud Sedimentation

E. Composition and Classification of Carbonate Rocks
   1. Identification and Interpretation of Carbonate Grain-types
   2. Classification Schemes for Carbonates
   3. Identifying Fossils in Thin-section
   4. Interpretation of Carbonate Fabrics in Thin-section

F. Diagenesis of Carbonate Rocks
   1. Various Calcite Forms and Their Identification in Thin-section
   2. Dolomitization

3. Interpreting Degrees of Dolomitization
4. Paragenetic Sequence Analysis in Carbonate Rocks

VIII. Required Text

Tucker, M.E., 2001, Sedimentary Petrology: An Introduction to the Origin of Sedimentary Rocks, Blackwell Publishing, 251 pp.

VIII. Bibliography (*Indicates Classic Text)

*Dickinson, W.R., 1970, Interpreting detrital modes of graywhake and arkose: Journal of Sedimentary Petrology, v. 40, p. 695-707.

*Dickinson, W.R. and Suczek, C.A., 1979, Plate tectonics and sandstone compositions: AAPG Bulletin, v. 63, p. 2164-2182.

Dickinson, W.R., 1985, Interpreting provenance from detrital modes of sandstones, in Zuffa, G.G., ed., Provenance of arenites: Dordrecht, D., Reidel, p. 333-362.

Dutta, P.K. and Suttner, L.J., 1986, Alluvial sandstone composition and paleoclimate, II. Authigenic mineralogy: Journal of Sedimentary Petrology, v. 56, p. 346-358.

*Folk, R.L., 1974, Petrology of sedimentary rocks: Austin, TX, Hemphil, 182 p.

Ingersoll, R.V. and Dickinson, W.R., 1990, Great Valley Group (sequence), Sacramento Valley, California, in Ingersol, V., and Nilsen, T.H., eds., Sacramento Valley symposium and guidebook: Bakersfield, CA, Pacific Section, SEPM (Society for Sedimentary Geology), p. 183-215.

*Ingersoll, R.V. and Suczek, C.A., 1979, Perology and provenance of Neogene sand from Nicobar and Bengal fans, DSDP sites 211 and 218: Journal of Sedimentary Petrology, v. 49, p. 1217-1228.

Ingersoll, R.V., Bullard, T.F., Ford, R.I., and Pickle, J.D., 1985, The effect of grain size on detrital modes: A test of the Gazzi-Dickinson point-counting method: Journal of Sedimentary Petrology, v. 54, p. 103-116.

Johnson, M.J., 1990, Chemical weathering controls on sand composition, in Nierener, W.A., ed., Encyclopedia of earth system science: Orlando, FL, Academic Press, p. 455-466.

Johnson, M.J., 1993, The system controlling the composition of clastic sediments, in Johnson, M.J. and Basu, A. eds., Processes Controling the Compostition of Clastic Sediments: GSA Special Paper no. 284, p. 1-19

*Kastner, M., Keene J.B., and Gieskes, J.M., 1977. Diagenesis of siliceous oozes –I. Chemical controls on the rate of opal-A to opal-CT transformation – an experimental study. Geochim. Cosmochim. Acta 41, p. 1041-1059.

Mack, G.H., 1984, Exceptions to the relationship between plate tectonics and sandstone composition: Journal of Sedimentary Petrology, v. 54, p. 212-220.

McBride, E.F., 1984, Diagenetic processes that affect provenance determination in sandstone, in Zuffa, G.G., eds., Provenance of arenites: Dordrecht, B. Reidel, p.95-11.

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

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

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
GEOL	A638	n/a	3	(3+0)

6. Complete Course Title
Adv Sed Petrology and Diagenesis

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other CCG (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions
- ☐ General Education Requirement

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2016 To: /9999

12. ☐ Cross Listed with

☒ Stacked with 438

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Geological Sciences	3/1/2015	K. Crossen
2.		
3.		

Initiator Name (typed): Jennifer Aschoff Initiator Signed Initials: _____ Date: _____

13b. Coordination Email Date: _____
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: _____

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Advanced concepts in sedimentary petrography and petrology, including diagenesis. Topics include advanced rock classification, grain identification in thin section, cement identification, sedimentary fabric, paragenetic sequence and provenance analysis, and porosity estimation in carbonate and clastic sedimentary rocks. Emphasis on hands-on description, interpretation and applications.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*

16b. Co-requisite(s) *(concurrent enrollment required)*

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☒ Level

16d. Registration Restriction(s) *(non-codable)*
Graduate Standing

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Adding advanced course in advanced sedimentary petrology based on student interest and needs

Initiator (faculty only) Date
Jennifer Aschoff
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chair Date

☐ Approved
☐ Disapproved
College/School Curriculum Committee Chair Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chair Date

☐ Approved
☐ Disapproved
Provost or Designee Date

Course Content Guide
University of Alaska Anchorage

GEOL A638
Adv Sed Petrology and Diagenesis

I. Date of Initiation: Spring 2015

II. Course Information

A. College: CAS
B. Course Subject: Geological Sciences
C. Course Number: GEOL A638
D. Number of Credits: 3.0 (2+1)
E. Course Title: Adv Sed Petrology and Diagenesis
F. Grading Basis: A-F
G. Course Description: Advanced concepts in sedimentary petrography and petrology, including diagenesis. Topics include advanced rock classification, grain identification in thin section, cement identification, sedimentary fabric, paragenetic sequence and provenance analysis, and porosity estimation in carbonate and clastic sedimentary rocks. Emphasis on hands-on description, interpretation and applications.
H. Registration Restriction: Graduate Standing
A. Fee: Yes

III. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will:
   1. Deliver interactive, multi-media lectures, collaborative in-class exercises and laboratory exercises on the topics listed in the course description and course outline.
   2. Incorporate real-world datasets in hands-on exercises that reflect typical tasks a geoscience professional would complete as part of their job.

B. Student Learning Outcomes and Evaluation. The students will:

Student Learning Outcomes	Evaluations
Identify, describe and interpret sedimentary grains in thin-section.	Exercises
Interpret depositional environments and provenance from thin section.	Exercises and Exam(s)
Determine and classify various types of porosity, and delineate paragenetic sequences.	Exercises and exams
Point count and interpret sedimentary provenance from point-count data.	Exercises
Generating, integrating, interpreting, synthesizing and presenting data.	Final Project

IV. Course Evaluations

Based on grades received on in-class exercises, laboratory exercises, exam(s) and presentations.

V. Course Level Justification

This course builds on concepts presented in Sedimentology (Geol A430), Stratigraphy (Geol A431) by enhancing student skills in sedimentology, while providing new skills in thin-section inspection and advanced sedimentary petrology. It is typically taught as an upper-level undergraduate (400) or graduate course (600) at other institutions. The class is stacked with a 400-level (Geol A438) for graduate students. Students enrolled in the 600-level course will be required to generate and interpret data related to the course content.

VI. Topical Course Outline

A. Review of Microscopes and Optical Mineralogy
   1. Optics
   2. Identification of Sedimentary Grain Types
   3. Components of Sedimentary Rocks
   4. Common Applications of Sedimentary Petrology

B. Framework Composition and Classification of Sandstone
   1. Common Sandstone Types
   2. Provenance Analysis
   3. Point Counting

C. Cements and Diagenesis of Sandstone
   1. Physical Diagenesis/Compaction
   2. Compaction Textures and Their Interpretation
   3. Cement Types and Their Identification
   4. Chemical Diagenesis- Cementation, Paragenesis and Authigenesis
   3. Porosity Measurement from Thin Section
   4. Porosity Classification

D. Composition and Classification of Shale
   1. Grain Types
   2. Mud Sedimentation

E. Composition and Classification of Carbonate Rocks
   1. Identification and Interpretation of Carbonate Grain-types
   2. Classification Schemes for Carbonates
   3. Identifying Fossils in Thin-section
   4. Interpretation of Carbonate Fabrics in Thin-section

F. Diagenesis of Carbonate Rocks
   1. Various Calcite Forms and Their Identification in Thin-section

2. Dolomitization
3. Interpreting Degrees of Dolomitization
4. Paragenetic Sequence Analysis in Carbonate Rocks

VIII. Required Text

Tucker, M.E., 2001, Sedimentary Petrology: An Introduction to the Origin of Sedimentary Rocks, Blackwell Publishing, 251 pp.

VIII. Bibliography (*Indicates Classic Text)

*Dickinson, W.R., 1970, Interpreting detrital modes of graywhake and arkose: Journal of Sedimentary Petrology, v. 40, p. 695-707.

*Dickinson, W.R. and Suczek, C.A., 1979, Plate tectonics and sandstone compositions: AAPG Bulletin, v. 63, p. 2164-2182.

Dickinson, W.R., 1985, Interpreting provenance from detrital modes of sandstones, in Zuffa, G.G., ed., Provenance of arenites: Dordrecht, D., Reidel, p. 333-362.

Dutta, P.K. and Suttner, L.J., 1986, Alluvial sandstone composition and paleoclimate, II. Authigenic mineralogy: Journal of Sedimentary Petrology, v. 56, p. 346-358.

*Folk, R.L., 1974, Petrology of sedimentary rocks: Austin, TX, Hemphil, 182 p.

Ingersoll, R.V. and Dickinson, W.R., 1990, Great Valley Group (sequence), Sacramento Valley, California, in Ingersol, V., and Nilsen, T.H., eds., Sacramento Valley symposium and guidebook: Bakersfield, CA, Pacific Section, SEPM (Society for Sedimentary Geology), p. 183-215.

*Ingersoll, R.V. and Suczek, C.A., 1979, Perology and provenance of Neogene sand from Nicobar and Bengal fans, DSDP sites 211 and 218: Journal of Sedimentary Petrology, v. 49, p. 1217-1228.

Ingersoll, R.V., Bullard, T.F., Ford, R.I., and Pickle, J.D., 1985, The effect of grain size on detrital modes: A test of the Gazzi-Dickinson point-counting method: Journal of Sedimentary Petrology, v. 54, p. 103-116.

Johnson, M.J., 1990, Chemical weathering controls on sand composition, in Nierener, W.A., ed., Encyclopedia of earth system science: Orlando, FL, Academic Press, p. 455-466.

Johnson, M.J., 1993, The system controlling the composition of clastic sediments, in Johnson, M.J. and Basu, A. eds., Processes Controling the Compostition of Clastic Sediments: GSA Special Paper no. 284, p. 1-19

*Kastner, M., Keene J.B., and Gieskes, J.M., 1977. Diagenesis of siliceous oozes –I. Chemical controls on the rate of opal-A to opal-CT transformation – an experimental study. Geochim. Cosmochim. Acta 41, p. 1041-1059.

Mack, G.H., 1984, Exceptions to the relationship between plate tectonics and sandstone composition: Journal of Sedimentary Petrology, v. 54, p. 212-220.

McBride, E.F., 1984, Diagenetic processes that affect provenance determination in sandstone, in Zuffa, G.G., eds., Provenance of arenites: Dordrecht, B. Reidel, p.95-11.

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

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

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
GEOL	A440	A340	4	(3+1)

6. Complete Course Title
Hydrogeology

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☒ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other CCG (please specify)
- ☒ Course Number
- ☒ Contact Hours
- ☐ Repeat Status
- ☒ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions
- ☐ General Education Requirement

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Spring/2016 To: /9999

12. ☐ Cross Listed with _____
☒ Stacked with GEOL A640
Signature Cross-Listed Coordination

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Geological Sciences, B.S.	4/3/15	K. Crossen
2. Environment and Society, B.S.	4/3/15	D. Van Dommelen
3. Biological Sciences, B.S./AEST - COE, B.S.	4/3/15	F. Rainey/A. Dobson

Initiator Name (typed): Donald M. Reeves Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 4/3/15
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 4/3/15

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Comprehensive coverage of the fundamentals of Hydrogeology including physical and hydraulic properties of subsurface aquifers, Darcy's Law and the Ground Water Flow Equation, hydraulic head, storage and effective stress, regional ground water flow, aquifer hydraulics, and water well design and development. Laboratory time will be used to enhance data analysis, mathematical, and problem-solving skill sets.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
[CHEM A105, GEOL A221, MATH A251, PHYS A124] min grade of C

16b. Co-requisite(s) *(concurrent enrollment required)*

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Course focus is quantative in nature and more suitable at 400-level than 300-level. Addition of prerequisities to address student deficiences in math and physics. Laboratory is designed to improve students' data analysis, math, and problem-solving skills.

Initiator (faculty only)	Date	☐ Approved ☐ Disapproved	Dean/Director of School/College	Date
Donald M. Reeves Initiator (TYPE NAME)				
☐ Approved ☐ Disapproved	Department Chair	Date	☐ Approved ☐ Disapproved	Undergraduate/Graduate Academic Board Chair	Date
☐ Approved ☐ Disapproved	College/School Curriculum Committee Chair	Date	☐ Approved ☐ Disapproved	Provost or Designee	Date

Course Content Guide
University of Alaska Anchorage

GEOL A440
Hydrogeology

I. Date of Initiation: Spring 2016

II. Course Information

A. College: CAS
B. Course Subject: Geological Sciences
C. Course Number: GEOL A440
D. Number of Credits: 4.0 (3+1)
E. Course Title: Hydrogeology
F. Grading Basis: A-F
G. Course Description: Comprehensive coverage of the fundamentals of Hydrogeology including physical and hydraulic properties of subsurface aquifers, Darcy's Law and the Ground Water Flow Equation, hydraulic head, storage and effective stress, regional ground water flow, aquifer hydraulics, and water well design and development. Laboratory time will be used as a recitation to enhance data analysis, mathematical, and problem-solving skill sets.
H. Course Prerequisites: CHEM A105, GEOL A221, MATH A200, PHYS A124
I. Fee: Yes

III. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will:

1. Provide interactive PowerPoint lectures on the topics listed in the course description and course outline. These topics represent the theoretical and applied foundation of Hydrogeology.
2. Use laboratory time as a recitation to facilitate the development and enhancement of students' data analysis, mathematical, and problem-solving skill sets.
3. Incorporate real-world hydrogeologic applications through an Anchorage Hydrogeology field trip, incorporation of actual hydrogeologic data in problem sets, and discussion of selected book highlighting real-world problem(s).

B. Student Learning Outcomes and Evaluation. The students will:

Student Learning Outcomes	Evaluations
Acquire a solid understanding of the fundamental processes and theory used in hydrogeology.	Problem sets and exams.
Demonstrate and articulate understanding of real-world hydrogeologic problems and applications.	Problem sets and selected text discussion.
Enhance existing data analysis, mathematical, and problem-solving skill sets.	Problem sets and exams.

IV. Course Evaluations

Based on grades received on problem sets, exams, and attendance during book discussion and field trip.

V. Course Level Justification

This course provides the necessary theoretical and applied foundations of hydrogeology, and is typically taught at the 400- and graduate-levels (often stacked) in the vast majority of Universities, both domestic and abroad.

VI. Topical Course Outline

A. Introduction to Hydrogeology
   1. Basic Concepts and Processes
   2. Worldwide Distribution of Water
   3. Highlighted Hydrogeology Applications

B. Properties of Aquifers
   1. Porosity and Porosity Computation
   2. Permeability
   3. Darcy's Law
   4. Permeability Estimation for Unconsolidated Materials
   5. Basic Aquifer Concepts

C. Principles of Ground Water Flow
   1. Fluid Energy and Hydraulic Head
   2. Bernoulli Equation and Hubbert Force Potential
   3. Fluid Density and Viscosity
   4. Specific Discharge and Ground Water Velocity
   5. Laminar and Turbulent Flow Regimes

D. Ground Water Flow Equations
   1. Homogeneity/Heterogeneity and Isotropy/Anisotropy
   2. Gradient Operator and Partial Derivatives
   3. Conservation of Fluid Mass Derivation of the Ground Water Flow Equation
   4. Overburden and Effective Stress
   5. Aquifer Storage and Compaction
   6. Solutions to the Groundwater Flow Equation for Confined and Unconfined Aquifers
   7. Capillarity

E. Regional Ground Water Flow Equations
   1. Zones of Recharge and Discharge
   2. Hubbert and Toth Models of Regional Flow
   3. Permeability Contrasts and Flow Barriers
   4. Ground Water – Surface Water Interaction

5. Field Water Balances
6. Hyporheic Zone Exchange

F. Geology and Ground Water Occurrence
   1. Unconsolidated Aquifers
   2. Consolidated Aquifers
   3. Tectonic Settings
   4. Coastal Aquifers and Tidal Influences

G. Water Wells
   1. Well Drilling
   2. Well Screens and Sediment Size Analysis
   3. Water Well Design
   4. Water Well Development
   5. Water Well Pumps

H. Estimation of Aquifer Parameters
   1. Stratigraphic Unit and Hydrostratigraphic Unit Designation
   2. Arithmetric, Geometric, and Harmonic Averaging and Averaging Rules
   3. Permeameters and Core Estimation of K
   4. Well Hydraulics: Pumping and Slug Tests
   5. Estimation of Hydraulic Properties from Pumping and Slug Tests
   6. Well Interference and Hydrogeologic Boundaries

I. Additional Reading (Either Ogalla Blue or Cadillac Desert)
   1. Highlight real-world problems identified in selected book and discuss potential solutions.
   2. Extrapolate real-world problems identified in book to other hydrogeologic settings.

VIII. Required Texts

Fetter, C.W., (2001). Applied Hydrogeology, 4th Ed., Prentice Hall, Upper Saddle River, New Jersey, 598 pp.

Selected Book on Real-World Hydrogeologic Problem, e.g., Cadillac Desert and Ogalla Blue in Bibliography (subject to change).

VIII. Bibliography

Ashworth, W. (2006). Ogallala Blue: Water and Life on the High Plains, Countrywide Press, Woodstock, NY, 330 pp.

Batu, V. (1998). Aquifer Hydraulics: A Comprehensive Guide to Hydrogeologic Data Analysis, John Wiley and Sons, New York, NY, 727 pp.

* Bear, J. (1972). Dynamics of Fluids in Porous Media, Dover Publications, New York, NY, 764 pp.

Driscoll, F.G. (1986). Groundwater and Wells, 2nd Ed., Johnson Screens, St. Paul MN, 1089 pp.

* Freeze, J.A. and J.A. Cherry (1979). Groundwater, Prentice Hall, Englewood Cliffs, NJ, 603 pp.

Hermance, J.F. (1999). A Mathematical Primer on Groundwater Flow, Prentice Hall, Upper Saddle River, NJ, 230j pp.

Reisner, M., (1993). Cadillac Desert: The American West and Its Disappearing Water, Penguin Books, New York, NY, 582 pp.

Winter, T.C., J.W. Harvey, O.L. Franke, and W.M. Alley, (1998). Ground Water and Surface Water: A Single Resource, U.S. Geological Survey Circular 1139, Denver, CO, 79 pp.

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

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

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
GEOL	A640	N/A	4	(3+1)

6. Complete Course Title
Advanced Hydrogeology

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other CCG (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions
- ☐ General Education Requirement

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Spring/2016 To: /9999

12. ☐ Cross Listed with _____
☒ Stacked with GEOL A440
Signature Cross-Listed Coordination

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Biological Sciences, M.S.	4/3/15	F. Rainey
2. AEST - COE, M.S.	4/3/15	A. Dobson
3.		

Initiator Name (typed): Donald M. Reeves Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 4/3/15
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 4/3/15

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Comprehensive coverage of the fundamentals of Hydrogeology including physical and hydraulic properties of subsurface aquifers, Darcy's Law and the Ground Water Flow Equation, hydraulic head, storage and effective stress, regional ground water flow, aquifer hydraulics, and water well design and development. Laboratory time will be used to enhance data analysis, mathematical, and problem-solving skill sets.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*

16b. Co-requisite(s) *(concurrent enrollment required)*

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☒ Level

16d. Registration Restriction(s) *(non-codable)*
Graduate standing

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Graduate level course to be stacked with GEOL A440.

Initiator (faculty only) Date

Donald M. Reeves
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chair Date

☐ Approved
☐ Disapproved
College/School Curriculum Committee Chair Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chair Date

☐ Approved
☐ Disapproved
Provost or Designee Date

Course Content Guide
University of Alaska Anchorage

GEOL A640
Advanced Hydrogeology

I. Date of Initiation: Spring 2016

II. Course Information

A. College: CAS
B. Course Subject: Geological Sciences
C. Course Number: GEOL A640
D. Number of Credits: 4.0 (3+1)
E. Course Title: Hydrogeology
F. Grading Basis: A-F
G. Course Description: Comprehensive coverage of the fundamentals of Hydrogeology including physical and hydraulic properties of subsurface aquifers, Darcy's Law and the Ground Water Flow Equation, hydraulic head, storage and effective stress, regional ground water flow, aquifer hydraulics, and water well design and development. Laboratory time will be used as a recitation to enhance data analysis, mathematical, and problem-solving skill sets.
H. Course Prerequisites:
I. Fee: Yes

III. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will:

1. Provide interactive PowerPoint lectures on the topics listed in the course description and course outline. These topics represent the theoretical and applied foundation of Hydrogeology.
2. Use laboratory time to facilitate the development and enhancement of students' data analysis, mathematical, and problem-solving skill sets.
3. Incorporate real-world hydrogeologic applications through an Anchorage Hydrogeology field trip, incorporation of actual hydrogeologic data in problem sets, and discussion of selected book highlighting real-world problem(s).
4. An additional and more rigorous set of graduate-level problems will be provided for all graduate students. These problem sets are designed to provide the graduate students with a higher level of understanding in the course subject matter.

B. Student Learning Outcomes and Evaluation. The students will:

Student Learning Outcomes	Evaluations
Acquire a solid understanding of the fundamental processes and theory used in hydrogeology.	Problem sets and exams.
Demonstrate and articulate understanding of real-	Problem sets and selected text

world hydrogeologic problems and applications.	discussion.
Enhance existing data analysis, mathematical, and problem-solving skill sets.	Problem sets and exams.
Demonstrate professional level understanding of hydrogeologic concepts.	Rigorous, professional-level problem sets and exams.

IV. Course Evaluations

Based on grades received on problem sets, exams, and attendance during book discussion and field trip. Graduate students enrolled in 640 will receive graduate-level problem sets that will incur an estimated 2-4 hours of additional work per problem set.

V. Course Level Justification

This course provides the necessary theoretical and applied foundations of hydrogeology, and is typically taught at the 400- and graduate-levels (often stacked) in the vast majority of Universities, both domestic and abroad.

The primary difference between A440 and A640 is that A640 students will receive graduate-level problem sets. These additional exercises will be significantly more difficult and challenging than the problem sets required by the A440 students. Exams will also differ between A440 and A640 students. This approach is commonly used to distinguish between undergraduate and graduate course loads for stacked courses.

VI. Topical Course Outline

A. Introduction to Hydrogeology
   1. Basic Concepts and Processes
   2. Worldwide Distribution of Water
   3. Highlighted Hydrogeology Applications

B. Properties of Aquifers
   1. Porosity and Porosity Computation
   2. Permeability
   3. Darcy's Law
   4. Permeability Estimation for Unconsolidated Materials
   5. Basic Aquifer Concepts

C. Principles of Ground Water Flow
   1. Fluid Energy and Hydraulic Head
   2. Bernoulli Equation and Hubbert Force Potential
   3. Fluid Density and Viscosity
   4. Specific Discharge and Ground Water Velocity
   5. Laminar and Turbulent Flow Regimes

D. Ground Water Flow Equations

1. Homogeneity/Heterogeneity and Isotropy/Anisotropy
2. Gradient Operator and Partial Derivatives
3. Conservation of Fluid Mass Derivation of the Ground Water Flow Equation
4. Overburden and Effective Stress
5. Aquifer Storage and Compaction
6. Solutions to the Groundwater Flow Equation for Confined and Unconfined Aquifers
7. Capillarity

E. Regional Ground Water Flow Equations
1. Zones of Recharge and Discharge
2. Hubbert and Toth Models of Regional Flow
3. Permeability Contrasts and Flow Barriers
4. Ground Water – Surface Water Interaction
5. Field Water Balances
6. Hyporheic Zone Exchange

F. Geology and Ground Water Occurrence
1. Unconsolidated Aquifers
2. Consolidated Aquifers
3. Tectonic Settings
4. Coastal Aquifers and Tidal Influences

G. Water Wells
1. Well Drilling
2. Well Screens and Sediment Size Analysis
3. Water Well Design
4. Water Well Development
5. Water Well Pumps

H. Estimation of Aquifer Parameters
1. Stratigraphic Unit and Hydrostratigraphic Unit Designation
2. Arithmetric, Geometric, and Harmonic Averaging and Averaging Rules
3. Permeameters and Core Estimation of K
4. Well Hydraulics: Pumping and Slug Tests
5. Estimation of Hydraulic Properties from Pumping and Slug Tests
6. Well Interference and Hydrogeologic Boundaries

I. Additional Reading (Either Ogalla Blue or Cadillac Desert)
1. Highlight real-world problems identified in selected book and discuss potential solutions.
2. Extrapolate real-world problems identified in book to other hydrogeologic settings.

VIII. Required Texts

Fetter, C.W., (2001). Applied Hydrogeology, 4th Ed., Prentice Hall, Upper Saddle River, New Jersey, 598 pp.

Selected Book on Real-World Problem, e.g., Cadillac Desert and Ogalla Blue in Bibliography (subject to change).

VIII. Bibliography

Ashworth, W. (2006). Ogallala Blue: Water and Life on the High Plains, Countrywide Press, Woodstock, NY, 330 pp.

Batu, V. (1998). Aquifer Hydraulics: A Comprehensive Guide to Hydrogeologic Data Analysis, John Wiley and Sons, New York, NY, 727 pp.

* Bear, J. (1972). Dynamics of Fluids in Porous Media, Dover Publications, New York, NY, 764 pp.

Driscoll, F.G. (1986). Groundwater and Wells, 2nd Ed., Johnson Screens, St. Paul MN, 1089 pp.

* Freeze, J.A. and J.A. Cherry (1979). Groundwater, Prentice Hall, Englewood Cliffs, NJ, 603 pp.

Hermance, J.F. (1999). A Mathematical Primer on Groundwater Flow, Prentice Hall, Upper Saddle River, NJ, 230j pp.

Reisner, M., (1993). Cadillac Desert: The American West and Its Disappearing Water, Penguin Books, New York, NY, 582 pp.

Winter, T.C., J.W. Harvey, O.L. Franke, and W.M. Alley, (1998). Ground Water and Surface Water: A Single Resource, U.S. Geological Survey Circular 1139, Denver, CO, 79 pp.

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

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

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
GEOL	A445	N/A	3	(3+0)

6. Complete Course Title
Geothermal Energy

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other CCG (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions
- ☐ General Education Requirement

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Spring/2016 To: /9999

12. ☐ Cross Listed with _____
☒ Stacked with GEOL A645
Signature Cross-Listed Coordination

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Geological Sciences, B.S.	4/3/15	K. Crossen
2. Environment and Society, B.S.	4/3/15	D. Van Dommelen
3. Biological Sciences, B.S./AEST - COE, B.S.	4/3/15	F. Rainey/A. Dobson

Initiator Name (typed): Donald M. Reeves Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 4/3/15
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 4/3/15

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Comprehensive coverage of geothermal systems and relevant processes including conductive and convective heat flow, subsurface fluid flow, geothermal exploration, resource assessment, structural settings favorable for geothermal reservoirs, microseismicity, well scaling and corrosion, power generation and enhanced geothermal systems.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
[CHEM A105, GEOL A221, MATH A200, PHYS A124]
min grade C

16b. Co-requisite(s) *(concurrent enrollment required)*

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Taught previously as GEOL A490. Requesting permanent course number and catalog listing.

Initiator (faculty only) Date
Donald M. Reeves
Initiator (TYPE NAME)

☐ Approved ☐ Disapproved Department Chair Date

☐ Approved ☐ Disapproved College/School Curriculum Committee Chair Date

☐ Approved ☐ Disapproved Dean/Director of School/College Date

☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chair Date

☐ Approved ☐ Disapproved Provost or Designee Date

Course Content Guide
University of Alaska Anchorage

GEOL A445
Geothermal Energy

I. Date of Initiation: Spring 2016

II. Course Information

A. College: CAS
B. Course Subject: Geological Sciences
C. Course Number: GEOL A445
D. Number of Credits: 3.0 (3+0)
E. Course Title: Geothermal Energy
F. Grading Basis: A-F
G. Course Description: Comprehensive coverage of geothermal systems and relevant processes including conductive and convective heat flow, subsurface fluid flow, geothermal exploration, resource assessment, structural settings favorable for geothermal reservoirs, microseismicity, well scaling and corrosion, power generation and enhanced geothermal systems.
H. Course Prerequisites: CHEM A105, GEOL A221, MATH A200, PHYS A124
I. Fee: Yes

III. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will:
   1. Provide interactive PowerPoint lectures on the topics listed in the course description and course outline. These topics represent the theoretical and applied foundations of Geothermal Energy from a natural science perspective.
   2. Incorporate real-world geothermal reservoir applications through problem sets, selected geothermal reservoir case studies, and field trip to selected geothermal site.

B. Student Learning Outcomes and Evaluation. The students will:

Student Learning Outcomes	Evaluations
Acquire a solid understanding of the fundamental processes and relevant theory used in the geothermal field.	Problem sets and exams.
Demonstrate understanding of real-world problems and applications related to geothermal energy.	Problem sets.

IV. Course Evaluations

Based on grades received on problem sets and exams.

V. Course Level Justification

Geothermal energy encompasses multiple scientific disciplines and requires a significant number of prerequisites. For these reasons, this topic is typically taught at the upper-division under-graduate and graduate levels at Universities, both domestic and abroad. The stacking of this course allows for both undergraduate and graduate students to receive training in this important topic.

VI. Topical Course Outline

A. Introduction to Geothermal Energy
   1. Origin of Earth's Heat
   2. Composition of the Earth
   3. Conversion of Heat into Energy
   4. World Wide Energy Demands and Consumption
   5. Geothermal Resources of the United States

B. Heat Flow
   1. Heat Conduction
   2. Thermal Gradient
   3. Thermal Conductivity
   4. Heat Flow Maps
   5. Convection and Convective Heat Transfer
   6. Rayleigh Number and Natural Convection
   7. Geothermal Exploration and Convective Heat Transfer

C. Fluid Flow
   1. Porosity and Porosity Computation
   2. Permeabiltiy
   3. Darcy's Law
   4. Fluid Energy and Hydraulic Head
   5. Bernoulli Equation and Hubbert Force Potential
   6. Fluid Density and Viscosity
   7. Darcy's Law and Geothermal Reservoirs
   8. Multiphase Darcy's Law

D. Flow Through Fractured Media
   1. Cubic Law
   2. Types of Fractures
   3. Fault Type and Architecture
   4. Hydraulic Function of Faults
   5. Fluid Channeling Within Fractures
   6. Discrete Fracture Networks
   7. Statistical Fracture Network Analysis

E. Structural Settings Favorable for Geothermal
   1. Pacific Ring of Fire
   2. Magmatic Intrusions

3. Crustal Extension
4. Structural Settings Identified Within Great Basin
5. Power Plant Examples

F. Well Scaling and Corrosion – Case Studies
1. Diaz et al. (2005)
2. Kaypakoglu et al. (2012)
3. Ngothai et al. (2010)

G. Microseismicity – Case Studies
1. Urban and Lermo (2012)
2. Xu et al. (2012)

H. Geophysical and Remote Sensing for Geothermal
1. Seismic
2. Resistivity
3. Magnetotelluric
4. Gravity
5. Borehole Geophysics
6. Hyperspectral Analysis and Mineral Identification
7. InSAR

I. Geothermal Power Plants and Power Generation
1. Enthalpy – Power Relations
2. Thermodynamic Efficiency
3. Electrical Generation
4. Fossil Fuel and Nuclear Power Plants
5. Dry Steam Power Plants
6. Single Flash Power Plants
7. Double Flash Power Plants
8. Binary Cycle Power Plant
9. Cooling Towers
10. Advanced Geothermal Energy Conversion Systems

J. Enhanced Geothermal Systems
1. Future of Geothermal Energy
2. Shear Stimulation
3. Hydraulic Fracturing

VIII. Required Texts

Glassley, W.E., (2010). Geothermal Energy: Renewable Energy and the Environment, CRC Press, Boca Raton, FL, 290 pp.

Massachusetts Institute of Technology, (2006). The Future of Geothermal Energy: Impact of Enhanced Geothermal Systems (EGS) on the United States in the 21st Century, MIT Press, INL/EXT-06-0413.

VIII. Bibliography

DiPippio, R., (2008). Geothermal Power Plants, 2nd Ed., Elsevier, San Francisco, CA, 493 pp.

Fetter, C.W., (2001). Applied Hydrogeology, 4th Ed., Prentice Hall, Upper Saddle River, New Jersey, 598 pp.

Fisher, K. and N. Warpinski, (2011). Hydraulic fracture-height growth: real data, SPE International, SPE 145949, Denver, CO.

Grant, M.A. and P.F. Bixley, (2011). Geothermal Reservoir Engineering, 2nd Ed., Elsevier, San Franciso, CA, 359 pp.

Kaypakoglu, B., M. Sisman, and N. Aksoy, (2012). Preventative methods for scaling and corrosion in geothermal fields, New Zealand Geothermal Workshop Proceedings, Auckland, New Zealand.

McClure, M. and R. Horne, (2013). Is pure shear stimulation always the mechanism of stimulation in EGS?, Proceedings of the Thirty-Eight Workshop on Geothermal Reservoir Engineering, Stanford University, SGP-TR-198, Stanford, CA.

Ngothai, Y., N. Yanagisawa, A. Pring, P. Rose, B. O'Neill, and J. Brugger, (2010). Mineral scaling in geothermal fields: A review, Australian Geothermal Conference, Melbourne, Australia.

Ocampo-Diaz, J.D., B. Valdez-Salaz, M. Shorr, I. Sauceda, N. Rosas-Gonzalez, (2005). Review of corrosion and scaling problems in Cerro Prieto Geothermal Field over 31 years of commercial operations, Proceedings World Geothermal Congress, Antalya, Turkey.

Twiss, R.J. and E.M. Moores (2007). Structural Geology, 2nd Ed., W.H. Freeman and Co., New York, NY, 736 pp.

Urban, E. and J.F. Lermo, (2012). Relationship of local seismic activity, injection wells and active faults in the geothermal fields of Mexico, Proceedings Thirty-Seventh Workshop on Geothermal Reservoir Engineering, Stanford University, SGP-TR-194, Stanford, CA.

Xu, C., P.A. Dowd, and R. Mohais, (2012). Connectivity analysis of the Habanero enhanced geothermal system, Proceedings Thirty-Seventh Workshop on

Geothermal Reservoir Engineering, Stanford University, SGP-TR-194, Stanford, CA.

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

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

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
GEOL	A645	N/A	3	(3+0)

6. Complete Course Title
Advanced Geothermal Energy

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other CCG (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions
- ☐ General Education Requirement

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Spring/2016 To: /9999

12. ☐ Cross Listed with _____
☒ Stacked with GEOL A445
Signature Cross-Listed Coordination

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Geological Sciences, B.S.	4/3/15	K. Crossen
2. Environment and Society, B.S.	4/3/15	D. Van Dommelen
3. Biological Sciences, B.S./AEST - COE, B.S.	4/3/15	F. Rainey/A. Dobson

Initiator Name (typed): Donald M. Reeves Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 4/3/15
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 4/3/15

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Comprehensive coverage of geothermal systems and relevant processes including conductive and convective heat flow, subsurface fluid flow, geothermal exploration, resource assessment, structural settings favorable for geothermal reservoirs, microseismicity, well scaling and corrosion, power generation and enhanced geothermal systems.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*

16b. Co-requisite(s) *(concurrent enrollment required)*

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☒ Level

16d. Registration Restriction(s) *(non-codable)*
Graduate standing

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Taught previously as GEOL A690. Requesting permanent course number and catalog listing.

Initiator (faculty only) Date
Donald M. Reeves
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chair Date

☐ Approved
☐ Disapproved
College/School Curriculum Committee Chair Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chair Date

☐ Approved
☐ Disapproved
Provost or Designee Date

Course Content Guide
University of Alaska Anchorage

GEOL A645
Geothermal Energy

I. Date of Initiation: Spring 2016

II. Course Information

A. College: CAS
B. Course Subject: Geological Sciences
C. Course Number: GEOL A645
D. Number of Credits: 3.0 (3+0)
E. Course Title: Geothermal Energy
F. Grading Basis: A-F
G. Course Description: Comprehensive coverage of geothermal systems and relevant processes including conductive and convective heat flow, subsurface fluid flow, geothermal exploration, resource assessment, structural settings favorable for geothermal reservoirs, microseismicity, well scaling and corrosion, power generation and enhanced geothermal systems.
H. Course Prerequisites: CHEM A105, GEOL A221, MATH A200, PHYS A124
I. Fee: Yes

III. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will:
   1. Provide interactive PowerPoint lectures on the topics listed in the course description and course outline. These topics represent the theoretical and applied foundations of Geothermal Energy from a natural science perspective.
   2. Incorporate real-world geothermal reservoir applications through problem sets, selected geothermal reservoir case studies, and field trip to selected geothermal site.

B. Student Learning Outcomes and Evaluation. The students will:

Student Learning Outcomes	Evaluations
Acquire a solid understanding of the fundamental processes and relevant theory used in the geothermal field.	Problem sets and exams.
Demonstrate understanding of real-world problems and applications related to geothermal energy.	Problem sets.
Demonstrate proficiency in geothermal research through an individual research project on a selected geothermal reservoir.	Graduate Student Presentations

IV. Course Evaluations

Based on grades received on problem sets, exams, and graduate student presentations related to self-directed research on a selected geothermal reservoir.

V. Course Level Justification

Geothermal energy encompasses multiple scientific disciplines and requires a significant number of prerequisites. For these reasons, this topic is typically taught at the upper-division under-graduate and graduate levels at Universities, both domestic and abroad. The stacking of this course allows for both undergraduate and graduate students to receive training in this important topic.

Graduate students will select a geothermal reservoir and identify the geological and structural setting of the reservoir, heat source, exploration history, reservoir temperatures, operations and management strategies, and other relevant information. This self-directed research project will culminate in an in-class presentation that provides additional benefit to undergraduate students enrolled in the course.

VI. Topical Course Outline

A. Introduction to Geothermal Energy
   1. Origin of Earth's Heat
   2. Composition of the Earth
   3. Conversion of Heat into Energy
   4. World Wide Energy Demands and Consumption
   5. Geothermal Resources of the United States

B. Heat Flow
   1. Heat Conduction
   2. Thermal Gradient
   3. Thermal Conductivity
   4. Heat Flow Maps
   5. Convection and Convective Heat Transfer
   6. Rayleigh Number and Natural Convection
   7. Geothermal Exploration and Convective Heat Transfer

C. Fluid Flow
   1. Porosity and Porosity Computation
   2. Permeabiltiy
   3. Darcy's Law
   4. Fluid Energy and Hydraulic Head
   5. Bernoulli Equation and Hubbert Force Potential
   6. Fluid Density and Viscosity
   7. Darcy's Law and Geothermal Reservoirs

8. Multiphase Darcy's Law

D. Flow Through Fractured Media
   1. Cubic Law
   2. Types of Fractures
   3. Fault Type and Architecture
   4. Hydraulic Function of Faults
   5. Fluid Channeling Within Fractures
   6. Discrete Fracture Networks
   7. Statistical Fracture Network Analysis

E. Structural Settings Favorable for Geothermal
   1. Pacific Ring of Fire
   2. Magmatic Intrusions
   3. Crustal Extension
   4. Structural Settings Identified Within Great Basin
   5. Power Plant Examples

F. Well Scaling and Corrosion – Case Studies
   1. Diaz et al. (2005)
   2. Kaypakoglu et al. (2012)
   3. Ngothai et al. (2010)

G. Microseismicity – Case Studies
   1. Urban and Lermo (2012)
   2. Xu et al. (2012)

H. Geophysical and Remote Sensing for Geothermal
   1. Seismic
   2. Resistivity
   3. Magnetotelluric
   4. Gravity
   5. Borehole Geophysics
   6. Hyperspectral Analysis and Mineral Identification
   7. InSAR

I. Geothermal Power Plants and Power Generation
   1. Enthalpy – Power Relations
   2. Thermodynamic Efficiency
   3. Electrical Generation
   4. Fossil Fuel and Nuclear Power Plants
   5. Dry Steam Power Plants
   6. Single Flash Power Plants
   7. Double Flash Power Plants
   8. Binary Cycle Power Plant
   9. Cooling Towers

10. Advanced Geothermal Energy Conversion Systems

J. Enhanced Geothermal Systems
   1. Future of Geothermal Energy
   2. Shear Stimulation
   3. Hydraulic Fracturing

VIII. Required Texts

Glassley, W.E., (2010). Geothermal Energy: Renewable Energy and the Environment, CRC Press, Boca Raton, FL, 290 pp.

Massachusetts Institute of Technology, (2006). The Future of Geothermal Energy: Impact of Enhanced Geothermal Systems (EGS) on the United States in the 21st Century, MIT Press, INL/EXT-06-0413.

VIII. Bibliography

DiPippio, R., (2008). Geothermal Power Plants, 2nd Ed., Elsevier, San Francisco, CA, 493 pp.

Fetter, C.W., (2001). Applied Hydrogeology, 4th Ed., Prentice Hall, Upper Saddle River, New Jersey, 598 pp.

Fisher, K. and N. Warpinski, (2011). Hydraulic fracture-height growth: real data, SPE International, SPE 145949, Denver, CO.

Grant, M.A. and P.F. Bixley, (2011). Geothermal Reservoir Engineering, 2nd Ed., Elsevier, San Franciso, CA, 359 pp.

Kaypakoglu, B., M. Sisman, and N. Aksoy, (2012). Preventative methods for scaling and corrosion in geothermal fields, New Zealand Geothermal Workshop Proceedings, Auckland, New Zealand.

McClure, M. and R. Horne, (2013). Is pure shear stimulation always the mechanism of stimulation in EGS?, Proceedings of the Thirty-Eight Workshop on Geothermal Reservoir Engineering, Stanford University, SGP-TR-198, Stanford, CA.

Ngothai, Y., N. Yanagisawa, A. Pring, P. Rose, B. O'Neill, and J. Brugger, (2010). Mineral scaling in geothermal fields: A review, Australian Geothermal Conference, Melbourne, Australia.

Ocampo-Diaz, J.D., B. Valdez-Salaz, M. Shorr, I. Sauceda, N. Rosas-Gonzalez, (2005). Review of corrosion and scaling problems in Cerro Prieto

Geothermal Field over 31 years of commercial operations, Proceedings World Geothermal Congress, Antalya, Turkey.

Twiss, R.J. and E.M. Moores (2007). Structural Geology, 2nd Ed., W.H. Freeman and Co., New York, NY, 736 pp.

Urban, E. and J.F. Lermo, (2012). Relationship of local seismic activity, injection wells and active faults in the geothermal fields of Mexico, Proceedings Thirty-Seventh Workshop on Geothermal Reservoir Engineering, Stanford University, SGP-TR-194, Stanford, CA.

Xu, C., P.A. Dowd, and R. Mohais, (2012). Connectivity analysis of the Habanero enhanced geothermal system, Proceedings Thirty-Seventh Workshop on Geothermal Reservoir Engineering, Stanford University, SGP-TR-194, Stanford, CA.

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

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

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
GEOL	A457		3	(3+0)

6. Complete Course Title
Geology of Alaska

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions
- ☐ General Education Requirement

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Spring 16/ To: 9999/

12. ☐ Cross Listed with _____
☒ Stacked with A657 Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Geological Sciences		K Crossen
2. Natural Sciences		F Rainey
3. AEST - COE		A Dotson

Initiator Name (typed): Kristine J Crossen Initiator Signed Initials: _____ Date: _____

13b. Coordination Email Date: 4-3-15
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 4-3-15

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Alaskan geology including physiographic provinces, earthquakes, volcanoes, plate tectonics, resources, glaciers, permafrost, rivers, coasts and wind. Emphasis on processes, landforms, and differences between specific areas in Alaska. Special Note: Students may be required to provide their own transportation for optional field trips.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
GEOL A212 with minimum grade of C

16b. Co-requisite(s) *(concurrent enrollment required)*

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Taught twice previously as 490 course. Replacing 490 with permanent course number.

Initiator (faculty only) Date
Kristine J Crossen
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chair Date

☐ Approved
☐ Disapproved
College/School Curriculum Committee Chair Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chair Date

☐ Approved
☐ Disapproved
Provost or Designee Date

Course Content Guide
University of Alaska Anchorage

GEOL A457
Geology of Alaska

I. Date of Initiation: Spring 2016

II. Course Information

A. College or School: CAS
B. Course Subject: Geological Sciences
C. Course Number: GEOL A457
D. Number of Credits: 3.0 (0+9)
E. Course Title: Geology of Alaska
F. Grading Basis: A-F
G. Course Description: Alaskan geology including physiographic provinces, earthquakes, volcanoes, plate tectonics, resources, glaciers, permafrost, rivers, coasts and wind. Emphasis on processes, landforms, and differences between specific areas in Alaska. Special Note: Students may be required to provide their own transportation for optional field trips.
H. Prerequisites: GEOL A221 with minimum grade of C
I. Fees: yes

III. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will:
    1) Guide students in reading and interpreting the professional literature.
    2) Introduce the regional geology and tectonic setting of specific field areas.
    3) Compare differences between locales to examine resources, landforms, and tectonics of Alaska.

B. Student Learning Outcomes. The students will:

Student Learning Outcomes	Evaluation
Locate and identify landscapes, ranges, rivers and cities across Alaska	Map exercises
Read the professional literature	Graded reading summaries
Examine volcanoes and earthquakes within the Aleutian subduction zone and synthesize associated tectonics	Discussion and exams
Investigate resource formation processes and locations	Discussion and exams
Examine surface processes particular to Alaska including glaciers, permafrost, rivers, and coastlines	Discussion and exams

IV. Course Evaluation
Students will be evaluated on the basis of their map exercises, exams, summaries of professional readings, and class discussions.

V. Course Level Justification

This course has a 200-level prerequisite and builds upon concepts from earlier courses.

VI. Topical Course Outline

A. Physiographic provinces
   1. Locations and characteristics

B. Alaskan volcanoes and earthquakes
   1. Aleutian subduction zone, 1964 Alaska earthquake, 2002 Denali earthquake

C. Alaskan Tectonics
   1. Yakutat, Chugach, Peninsular, Wrangellia, and Yukon-Tanana terranes

D. Alaska resources
   1. Arctic Alaska terrane, North Slope petroleum province
   2. Cook Inlet oil, gas, and coal resources
   3. Gold – placer and lode deposits of Interior and Cook Inlet regions

E. Glaciers
   1. Processes, Cook Inlet history, Bering Glacier, Beringia, Qagnax Cave mammoths

F. Permafrost
   1. Processes of jacking, polygons, pingoes
   2. Engineering problems

G. Surface features: comparisons in different locales
   1. Rivers, aeolian, coasts

VII. Suggested Text(s)

There are no currently available texts that synthesize Alaskan geology. Students are required to read, produce written summaries and discuss the professional geologic literature.

VIII. Bibliography

Crossen, K.J. and T.V. Lowell, 2010, Holocene History Revealed by Post-surge Retreat, *in* R. Shuchmann and E. Joshberger, eds., Bering Glacier: Interdisciplinary Studies of North America's Largest Surging Glacier, Geological Society of America Special Paper 462, p. 235-250.

Enk, J.M., Yesner, D.R., O'Rourke, D.H., Crossen, K.J., and Veltre, D., 2009, Phylogeographic analysis of the mid-Holocene Mammoth from Quagnax Cave, St. Paul Island, Alaska, Palaeogeography, Palaeoclimatology, Palaeoecology, v.22, p. 1-7.

French, H.M., 2008, Periglacial Environment, Wiley, Chichester, 458 p.

Ridgway, K.D., Trop, J.M., Glen, J.M.G., and O'Neill, J.M., 2007, Tectonic Growth of a Collisional continental Margin: Crustal Evolution of Southern Alaska, Geological Society of America, Boulder, Special Paper 431, 658 p.

Yesner, D.R., Crossen, K.J., and Easton, N.A., 2011, Early Beringian Artifact Assemblages and Geoarchaeology of Tanana Valley Sites *in* Goebel, T. and Graf, S., eds., Lithic Assemblages in Beringia, Texas A & M Univ. Press.

Veltre, D.W., Yesner, D.R., Crossen, K.J., Graham, R.W., and Coltraine J.B., 2008, Patterns of Faunal Extinction and Paleoclimatic Change from Mid-Holocene Mammoth and Polar Bear Remains, Pribilof Islands, Alaska, Quaternary Research, v. 70, p. 40-50.

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

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

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
GEOL	A657		3	(3+0)

6. Complete Course Title
Advanced Geology of Alaska

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☒ Add *or* ☐ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions
- ☐ General Education Requirement

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Spring 16/ To: 9999/

12. ☐ Cross Listed with _____
☒ Stacked with A457 Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Geological Sciences		K Crossen
2. Natural Sciences		F Rainey
3. AEST - COE		A Dotson

Initiator Name (typed): Kristine J Crossen Initiator Signed Initials: _____ Date: _____

13b. Coordination Email Date: 4-3-15
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 4-3-15

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Alaskan geology including physiographic provinces, earthquakes, volcanoes, plate tectonics, resources, glaciers, permafrost, rivers, coasts and wind. Emphasis on processes, landforms, and differences between specific areas in Alaska. Independent research and professional presentation required. Special Note: Students may be required to provide their own transportation for optional field trips.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*

16b. Co-requisite(s) *(concurrent enrollment required)*

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☒ Level

16d. Registration Restriction(s) *(non-codable)*
Graduate Standing

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Stacked with GEOL A457 and graduate students are required to produce an independent research project and present it to class.

Initiator (faculty only) Date
Kristine J Crossen
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chair Date

☐ Approved
☐ Disapproved
College/School Curriculum Committee Chair Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chair Date

☐ Approved
☐ Disapproved
Provost or Designee Date

Course Content Guide
University of Alaska Anchorage

GEOL A657
Advanced Geology of Alaska

I. Date of Initiation: Spring 2016

II. Course Information

A. College or School: CAS
B. Course Subject: Geological Sciences
C. Course Number: GEOL A657
D. Number of Credits: 3.0 (0+9)
E. Course Title: Geology of Alaska
F. Grading Basis: A-F
G. Course Description: Alaskan geology including physiographic provinces, earthquakes, volcanoes, plate tectonics, resources, glaciers, permafrost, rivers, coasts and wind. Emphasis on processes, landforms, and differences between specific areas in Alaska. Independent research and professional presentation required. Special Note: Students may be required to provide their own transportation for optional field trips.
H. Prerequisites: Graduate Standing
I. Fees: yes

III. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will:
   1) Guide students in reading and interpreting the professional literature.
   2) Introduce the regional geology and tectonic setting of specific field areas.
   3) Compare differences between locales to examine resources, landforms, and tectonics of Alaska.

B. Student Learning Outcomes. The students will:

Student Learning Outcomes	Evaluation
Locate and identify landscapes, ranges, rivers and cities across Alaska	Map exercises
Critically evaluate the professional literature	Graded reading summaries
Examine volcanoes and earthquakes within the Aleutian subduction zone and synthesize associated tectonics	Discussion and exams
Investigate resource formation processes and locations; examine specific Alaskan surface processes	Discussion and exams
Produce independent research project and present professional quality presentation.	Professional presentation

IV. Course Evaluation

Students will be evaluated on the basis of their map exercises, exams, summaries of professional readings, and class discussions. Graduate level students will produce independent research on an instructor-approved project and will present a professional quality presentation.

V. Course Level Justification

This course uses both the conceptual and intellectual skills obtained in previous geology courses (including physical and historical geology) to apply to the geology of Alaska. Students will not only learn new material, but will continue to develop and apply critical thinking skills, practice in scientific method, and synthesize the professional literature. Independent research using a primary data set and a professional quality presentation is required.

VI. Topical Course Outline

A. Physiographic provinces
   1. Locations and characteristics

B. Alaskan volcanoes and earthquakes
   1. Aleutian subduction zone, 1964 Alaska earthquake, 2002 Denali earthquake

C. Alaskan Tectonics
   1. Yakutat, Chugach, Peninsular, Wrangellia, and Yukon-Tanana terranes

D. Alaska resources
   1. Arctic Alaska terrane, North Slope petroleum province
   2. Cook Inlet oil, gas, and coal resources
   3. Gold – placer and lode deposits of Interior and Cook Inlet regions

E. Glaciers
   1. Processes, Cook Inlet history, Bering Glacier, Beringia, Qagnax Cave mammoths

F. Permafrost
   1. Processes of jacking, polygons, pingoes
   2. Engineering problems

G. Surface features: comparisons in different locales
   1. Rivers, aeolian, coasts

VII. Suggested Text(s)

There are no currently available texts that synthesize Alaskan geology. Students are required to read, produce written summaries and discuss the professional geologic literature.

VIII. Bibliography

Crossen, K.J. and T.V. Lowell, 2010, Holocene History Revealed by Post-surge Retreat, *in* R. Shuchmann and E. Joshberger, eds., Bering Glacier: Interdisciplinary Studies of North America's Largest Surging Glacier, Geological Society of America Special Paper 462, p. 235-250.

Enk, J.M., Yesner, D.R., O'Rourke, D.H., Crossen, K.J., and Veltre, D., 2009, Phylogeographic analysis of the mid-Holocene Mammoth from Quagnax Cave, St. Paul Island, Alaska, Palaeogeography, Palaeoclimatology, Palaeoecology, v.22, p. 1-7.

French, H.M., 2008, Periglacial Environment, Wiley, Chichester, 458 p.

Ridgway, K.D., Trop, J.M., Glen, J.M.G., and O'Neill, J.M., 2007, Tectonic Growth of a Collisional continental Margin: Crustal Evolution of Southern Alaska, Geological Society of America, Boulder, Special Paper 431, 658 p.

Yesner, D.R., Crossen, K.J., and Easton, N.A., 2011, Early Beringian Artifact Assemblages and Geoarchaeology of Tanana Valley Sites *in* Goebel, T. and Graf, S., eds., Lithic Assemblages in Beringia, Texas A & M Univ. Press.

Veltre, D.W., Yesner, D.R., Crossen, K.J., Graham, R.W., and Coltraine J.B., 2008, Patterns of Faunal Extinction and Paleoclimatic Change from Mid-Holocene Mammoth and Polar Bear Remains, Pribilof Islands, Alaska, Quaternary Research, v. 70, p. 40-50.

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

1a. School or College	1b. Department
AS CAS	Geological Sciences

2. Complete Program Title/Prefix
Geological Sciences - Minor/ GEOL

3. Type of Program

Choose one from the appropriate drop down menu: Undergraduate: Bachelor of Science or Graduate: CHOOSE ONE

This program is a Gainful Employment Program: ☐ Yes or ☒ No

4. Type of Action:

PROGRAM	PREFIX
☐ Add	☐ Add
☐ Change	☐ Change
☒ Delete	☐ Inactivate

5. Implementation Date (semester/year)
From: Fall /2015 To: /9999

6a. Coordination with Affected Units Department, School, or College: CAS

Initiator Name (typed): Kristine J Crossen Initiator Signed Initials: _____
Date:_____

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: 4/3/15

6c. Coordination with Library Liaison Date: 4/3/15

7. Title and Program Description - Please attach the following:

☐ Cover Memo ☒ Catalog Copy in Word using the track changes function

8. Justification for Action

Initiator (faculty only) Date		☐ Approved ☐ Disapproved	Dean/Director of School/College Date
Kristine J Crossen Initiator (TYPE NAME)			
☐ Approved ☐ Disapproved	Department Chair Date	☐ Approved ☐ Disapproved	Undergraduate/Graduate Academic Board Chair Date
☐ Approved ☐ Disapproved	College/School Curriculum Committee Chair Date	☐ Approved ☐ Disapproved	Provost or Designee Date

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

1a. School or College	1b. Department
AS CAS	Geological Sciences

2. Complete Program Title/Prefix
Geological Sciences - B.S./ GEOL

3. Type of Program

Choose one from the appropriate drop down menu: Undergraduate: Bachelor of Science or Graduate: CHOOSE ONE

This program is a Gainful Employment Program: ☐ Yes or ☒ No

4. Type of Action:

PROGRAM	PREFIX
☐ Add	☐ Add
☒ Change	☐ Change
☐ Delete	☐ Inactivate

5. Implementation Date (semester/year)
From: Sp /2016 To: /9999

6a. Coordination with Affected Units Department, School, or College: CAS

Initiator Name (typed): Kristine J Crossen Initiator Signed Initials: _____
Date:_____

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: 4/3/15

6c. Coordination with Library Liaison Date: 4/3/15

7. Title and Program Description - Please attach the following:

☐ Cover Memo ☒ Catalog Copy in Word using the track changes function

8. Justification for Action

1. Change GEOL A321.
2. Change GEOL A360.
3. Add GEOL 361.
4. Change A435.
5. Stacking of new upper division and graduate courses (GEOL A436 and A636, GEOL A437 and A637, GEOL A438 and A638, GEOL A440 and A640, GEOL A445 and A645, GEOL A457 and A657.

Initiator (faculty only) Date	☐ Approved ☐ Disapproved Dean/Director of School/College Date
Kristine J Crossen Initiator (TYPE NAME)	
☐ Approved ☐ Disapproved Department Chair Date	☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chair Date
☐ Approved ☐ Disapproved College/School Curriculum Committee Chair Date	☐ Approved ☐ Disapproved Provost or Designee Date

GEOLOGICAL SCIENCES

ConocoPhillips Integrated Sciences Building (CPSB), Room 101R,
(907) 786-4940
www.uaa.alaska.edu/geology

Geology is the science that studies planet Earth. The geological sciences incorporate areas of study in:

1. Earth materials including mineralogy, petrology, sedimentology and stratigraphy, volcanology, ore deposits, and structure;
2. Geologic Earth history including historical geology and paleontology;
3. Earth surface processes including geomorphology, soils, paleoclimatology, glacial geology, and permafrost; and
4. Earth's environmental systems including hydrogeology, environmental geochemistry and geophysics.

The curriculum is designed to provide students with a solid understanding of the geological sciences to prepare them for graduate studies, government and industry employment, and teaching. A Bachelor of Science in Geological Sciences is available for undergraduates.

The Geological Sciences faculty is highly motivated to transmit their knowledge and passion for the geological sciences and focus on combining classroom education with laboratory and field work. Students who enjoy working outdoors, have a strong scientific background, and are interested in earth processes will find the geological sciences a rewarding area of study.

The program in Geological Sciences requires completion of a basic science curriculum in chemical, physical, and mathematical sciences in addition to core and elective courses in geological sciences. The undergraduate degree in geology offers two tracks: general geology or environmental geology. The general geology track includes core geology courses with upper division course electives. The environmental geology track requires core geology courses plus upper division electives that focus on environmental topics including environmental geochemistry, hydrogeology, and soils. Students are strongly encouraged to consult with Geologic Sciences faculty to choose the direction of study suiting their goals.

The Bachelor of Science in Geological Sciences program requires a minimum of 120 credits for graduation. It can be completed in four years by students who have adequate high school preparation in the sciences and math. Consult the College of Arts and Sciences list of recommended preparatory courses in all disciplines.

Program Objectives and Student Learning Outcomes

The curriculum of the UAA Geological Sciences program is designed to produce graduates who:

1. Have a basic knowledge of the principles related to the geological sciences with either an emphasis in environmental geology or general geology;
2. Have an understanding of how to think scientifically and apply their knowledge to solve geologic problems;
3. Have sufficient competence to obtain employment as an entry-level geologist or environmental geologist, and be able to progress professionally within the discipline and are prepared for advanced study;
4. Have a fundamental understanding of Alaskan geology and environmental problems in Alaska;
5. Are able to communicate their ideas; and
6. Are prepared for and understand the need for continued professional development throughout their careers.

In keeping with the objectives, it is expected that graduates of the UAA Geological Sciences program will have:

1. An ability to apply their knowledge of general geology and/or environmental geology;
2. An ability to accept challenges and think through problems until they are solved;
3. An ability to design and conduct projects that include field work, laboratory analyses and interpretation in their area of emphasis;
4. Experience in field geology in Alaska;

5. An ability to communicate effectively; and
6. A recognition of the need for, and ability to pursue, lifelong learning.

Honors in Geological Sciences

The Department of Geological Sciences offers recognition to students who demonstrate exceptional promise in the science by awarding them with departmental honors in Geological Sciences. To graduate with departmental honors, the student must be a declared Geological Sciences major and meet the following requirements:

1. Satisfy all requirements for a BS degree in Geological Sciences.
2. Maintain a cumulative GPA of 3.50.
3. Complete 6 credits of GEOL A499 Senior Thesis or 3 credits of GEOL A498 Student Research and 3 credits of GEOL A499 Senior Thesis with a grade of B or better.
4. Students intending to graduate with departmental honors must notify the Departmental Honors Committee, in writing, on or before the date they file their Application for Graduation with the Office of the Registrar.

Bachelor of Science, Geological Sciences

Admission Requirements

Complete the Application and Admission to Baccalaureate Programs requirements in Chapter 7.

Academic Progress

In order to graduate with a BS in Geological Sciences, all courses covered under Major Requirements Sciences must be completed with a grade of C or better. Students who audit a course in Geological Sciences or who are unable to earn a grade of C or better in the course may repeat the course for a maximum of two times. All prerequisites for Geological Sciences courses must be completed with a grade of C or better.

Please consult the undergraduate academic advisor in the Department of Geological Sciences to obtain a student handbook for the Geological Sciences major.

Graduation Requirements

Students must complete the following graduation requirements:

A. General University Requirements

Complete the General University Requirements for All Baccalaureate Degrees located at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees located at the beginning of this chapter.

C. College of Arts and Sciences Requirements

Complete the College of Arts and Sciences Requirements listed at the beginning of the CAS section of this catalog.

D. Major Requirements

Some major requirements may also be used to satisfy the College of Arts and Sciences BS requirements.

1. Complete these required support courses (24 credits):

CHEM A105/L	General Chemistry I	4
CHEM A106/L	General Chemistry II	4
PHYS A123/L	Basic Physics I	4
PHYS A124/L	Basic Physics II	4
MATH A200	Calculus I	4
STAT A253	Applied Statistics for the Sciences (4)	4
	or	
STAT A307	Probability and Statistics (4)	

Note: MATH A201 Calculus II is highly recommended for students majoring in Geological Sciences.

2. Complete the following Geological Sciences core curriculum courses (40 credits):

GEOL A121	Physical Geology for Science and Engineering Majors	4
GEOL A221	Historical Geology	4
GEOL A310	Professional Practices in Geology	3
GEOL A321	Mineralogy	4
GEOL A322	Igneous and Metamorphic Petrology	4
GEOL A335	Structural Geology	4
GEOL A350	Geomorphology	4
GEOL A360	Geochemistry	3
GEOL A430	Sedimentology	3
GEOL A435	Stratigraphy and Sedimentary Petrology	3

Complete 6 credits of the following required field courses 6

GEOL A480 Geologic Field Methods (3)
GEOL A481 Alaskan Field Investigations (3)
Geology field camp (3-6)

Geology field camps are offered through other accredited academic institutions and must be approved by the Department of Geological Sciences. Credits must be transferable to UAA from the academic institution that is offering the course and must be completed with a minimum grade of 2.00.

3. Complete 13-14 credits of the following: 13-14

GEOL A320 Volcanology (3)
GEOL A325 Geology of Ore Deposits (3)

GEOL A361 Earth Resources and Society (3)GEOL A380 Anchorage Field Studies (3)
GEOL A381 Kenai Peninsula Field Studies (3)
GEOL A382 Geologic Field Studies (3)
GEOL A436 Petroleum Geology (3)
GEOL A437 Depositional Systems and Dynamic Stratigraphy (3)
GEOL A438 Advanced Sedimentary Petrology and Diagenesis (3)
GEOL A440 Hydrogeology (4)
GEOL A445 Geothermal Energy
GEOL A454 Glacial and Quaternary Geology (3)
GEOL A455 Permafrost (3)
GEOL A456 Geoarchaeology (3)
GEOL A457 Geology of Alaska
GEOL A460 Environmental Geochemistry (3)
GEOL A475 Environmental Geophysics (3)
GEOL A480** Geologic Field Methods (3)
GEOL A481** Alaskan Field Investigations (3)
GEOL A482 Geologic Field Investigations (3)
GEOL A490 Advanced Topics in Geology (1-4)
GEOL A492 Geology Seminar (1)
GEOL A495 Geology Internship (1-3)
GEOL A498 Student Research (1-3)
GEOL A499 Senior Thesis (3)

***GEOL A480 and GEOL A481 may be applied toward recommended electives if they are not being applied to satisfy the core curriculum credits.*

4. Environmental Geological Sciences Track

Students wishing to receive a degree with an Environmental Geological Sciences track should complete requirement 3 with the following courses (13-14 credits):

GEOL A440	Hydrogeology	4
Complete at least 6 additional credits from the following:		6
GEOL A361	Earth Resources and Society (3)	
GEOL A454	Glacial and Quaternary Geology (3)	
GEOL A455	Permafrost (3)	
GEOL A457	Geology of Alaska (3)	
GEOL A460	Environmental Geochemistry (3)	
GEOL A436	Petroleum Geology (3)	
GEOL A445	Geothermal Energy (3)	
GEOL A495	Geology Internship (1-3)	
Complete at least 4 additional credits from requirement 3 above.		4

A minimum 120 credits is required for the degree, of which 42 must be upper division.

FACULTY

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Erin Shea, Assistant Professor

GEOLOGICAL SCIENCES

ConocoPhillips Integrated Sciences Building (CPSB), Room 101R,
(907) 786-4940
www.uaa.alaska.edu/geology

Geology is the science that studies planet Earth. The geological sciences incorporate areas of study in:

1. Earth materials including mineralogy, petrology, sedimentology and stratigraphy, volcanology, ore deposits, and structure;
2. Geologic Earth history including historical geology and paleontology;
3. Earth surface processes including geomorphology, soils, paleoclimatology, glacial geology, and permafrost; and
4. Earth's environmental systems including hydrogeology, environmental geochemistry and geophysics.

The curriculum is designed to provide students with a solid understanding of the geological sciences to prepare them for graduate studies, government and industry employment, and teaching. A Bachelor of Science in Geological Sciences is available for undergraduates.

The Geological Sciences faculty is highly motivated to transmit their knowledge and passion for the geological sciences and focus on combining classroom education with laboratory and field work. Students who enjoy working outdoors, have a strong scientific background, and are interested in earth processes will find the geological sciences a rewarding area of study.

The program in Geological Sciences requires completion of a basic science curriculum in chemical, physical, and mathematical sciences in addition to core and elective courses in geological sciences. The undergraduate degree in geology offers two tracks: general geology or environmental geology. The general geology track includes core geology courses with upper division course electives. The environmental geology track requires core geology courses plus upper division electives that focus on environmental topics including environmental geochemistry, hydrogeology, and soils. Students are strongly encouraged to consult with Geologic Sciences faculty to choose the direction of study suiting their goals.

The Bachelor of Science in Geological Sciences program requires a minimum of 120 credits for graduation. It can be completed in four years by students who have adequate high school preparation in the sciences and math. Consult the College of Arts and Sciences list of recommended preparatory courses in all disciplines.

Program Objectives and Student Learning Outcomes

The curriculum of the UAA Geological Sciences program is designed to produce graduates who:

1. Have a basic knowledge of the principles related to the geological sciences with either an emphasis in environmental geology or general geology;
2. Have an understanding of how to think scientifically and apply their knowledge to solve geologic problems;
3. Have sufficient competence to obtain employment as an entry-level geologist or environmental geologist, and be able to progress professionally within the discipline and are prepared for advanced study;
4. Have a fundamental understanding of Alaskan geology and environmental problems in Alaska;
5. Are able to communicate their ideas; and
6. Are prepared for and understand the need for continued professional development throughout their careers.

In keeping with the objectives, it is expected that graduates of the UAA Geological Sciences program will have:

1. An ability to apply their knowledge of general geology and/or environmental geology;
2. An ability to accept challenges and think through problems until they are solved;
3. An ability to design and conduct projects that include field work, laboratory analyses and interpretation in their area of emphasis;
4. Experience in field geology in Alaska;

5. An ability to communicate effectively; and
6. A recognition of the need for, and ability to pursue, lifelong learning.

Honors in Geological Sciences

The Department of Geological Sciences offers recognition to students who demonstrate exceptional promise in the science by awarding them with departmental honors in Geological Sciences. To graduate with departmental honors, the student must be a declared Geological Sciences major and meet the following requirements:

1. Satisfy all requirements for a BS degree in Geological Sciences.
2. Maintain a cumulative GPA of 3.50.
3. Complete 6 credits of GEOL A499 Senior Thesis or 3 credits of GEOL A498 Student Research and 3 credits of GEOL A499 Senior Thesis with a grade of B or better.
4. Students intending to graduate with departmental honors must notify the Departmental Honors Committee, in writing, on or before the date they file their Application for Graduation with the Office of the Registrar.

Bachelor of Science, Geological Sciences

Admission Requirements

Complete the Application and Admission to Baccalaureate Programs requirements in Chapter 7.

Academic Progress

In order to graduate with a BS in Geological Sciences, all courses covered under Major Requirements Sciences must be completed with a grade of C or better. Students who audit a course in Geological Sciences or who are unable to earn a grade of C or better in the course may repeat the course for a maximum of two times. All prerequisites for Geological Sciences courses must be completed with a grade of C or better.

Please consult the undergraduate academic advisor in the Department of Geological Sciences to obtain a student handbook for the Geological Sciences major.

Graduation Requirements

Students must complete the following graduation requirements:

A. General University Requirements

Complete the General University Requirements for All Baccalaureate Degrees located at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements for Baccalaureate Degrees located at the beginning of this chapter.

C. College of Arts and Sciences Requirements

Complete the College of Arts and Sciences Requirements listed at the beginning of the CAS section of this catalog.

D. Major Requirements

Some major requirements may also be used to satisfy the College of Arts and Sciences BS requirements.

1. Complete these required support courses (24 credits):

CHEM A105/L	General Chemistry I	4
CHEM A106/L	General Chemistry II	4
PHYS A123/L	Basic Physics I	4
PHYS A124/L	Basic Physics II	4
MATH A200	Calculus I	4
STAT A253	Applied Statistics for the Sciences (4)	4
	or	
STAT A307	Probability and Statistics (4)	

Note: MATH A201 Calculus II is highly recommended for students majoring in Geological Sciences.

2. Complete the following Geological Sciences core curriculum courses (40 credits):

GEOL A121	Physical Geology for Science and Engineering Majors	4
GEOL A221	Historical Geology	4
GEOL A310	Professional Practices in Geology	3
GEOL A321	Mineralogy	4
GEOL A322	Igneous and Metamorphic Petrology	4
GEOL A335	Structural Geology	4
GEOL A350	Geomorphology	4
GEOL A360	Geochemistry	3
GEOL A430	Sedimentology	3
GEOL A43~~15~~	Stratigraphy and Sedimentary Petrology	3
~~GEOL A432~~	~~Sedimentary Petrology Laboratory~~	~~1~~

Complete 6 credits of the following required field courses 6

GEOL A480	Geologic Field Methods (3)
GEOL A481	Alaskan Field Investigations (3)
	Geology field camp (3-6)

Geology field camps are offered through other accredited academic institutions and must be approved by the Department of Geological Sciences. Credits must be transferable to UAA from the academic institution that is offering the course and must be completed with a minimum grade of 2.00.

3. Complete 13-14 credits of the following: 13-14

GEOL A320	Volcanology (3)
GEOL A325	Geology of Ore Deposits (3)
~~GEOL A340~~	~~Hydrogeology (3)~~
GEOL A361	Earth Resources and Society (3)
GEOL A380	Anchorage Field Studies (3)
GEOL A381	Kenai Peninsula Field Studies (3)
GEOL A382	Geologic Field Studies (3)
GEOL A436	Petroleum Geology (3)
GEOL A437	Depositional Systems and Dynamic Stratigraphy (3)
GEOL A438	Advanced Sedimentary Petrology and Diagenesis (3)
GEOL A440	Hydrogeology (4)
GEOL A445	Geothermal Energy
GEOL A454	Glacial and Quaternary Geology (3)
GEOL A455	Permafrost (3)
GEOL A456	Geoarchaeology (3)
GEOL A457	Geology of Alaska
GEOL A460	Environmental Geochemistry (3)
GEOL A475	Environmental Geophysics (3)
GEOL A480**	Geologic Field Methods (3)
GEOL A481**	Alaskan Field Investigations (3)
GEOL A482	Geologic Field Investigations (3)
GEOL A490	Advanced Topics in Geology (1-4)
GEOL A492	Geology Seminar (1)
GEOL A495	Geology Internship (1-3)
GEOL A498	Student Research (1-3)

GEOL A499 Senior Thesis (3)

***GEOL A480 and GEOL A481 may be applied toward recommended electives if they are not being applied to satisfy the core curriculum credits.*

4. Environmental Geological Sciences Track

Students wishing to receive a degree with an Environmental Geological Sciences track should complete requirement 3 with the following courses (13-14 credits):

GEOL A~~34~~40	Hydrogeology	~~3~~4
Complete at least 6 additional credits from the following:		6
GEOL A361	Earth Resources and Society (3)	
GEOL A454	Glacial and Quaternary Geology (3)	
GEOL A455	Permafrost (3)	
GEOL A457	Geology of Alaska (3)	
GEOL A460	Environmental Geochemistry (3)	
~~GEOL A475~~	~~Environmental Geophysics (3)~~	
GEOL A436	Petroleum Geology (3)	
GEOL A445	Geothermal Energy (3)	
GEOL A495	Geology Internship (1-3)	
Complete at least 4 additional credits from requirement 3 above.		4

A minimum 120 credits is required for the degree, of which 42 must be upper division.

~~Minor, Geological Sciences~~

~~Students majoring in another subject who wish to minor in Geological Sciences must complete the following requirements. Completion of a minimum of 18 credits is required for the minor, 8 of which must be upper division.~~

~~GEOL A111~~	~~Physical Geology (3) and GEOL A111L (1)~~	~~4~~
~~Or~~		
~~GEOL A121~~	~~Physical Geology for Science and Engineering Majors~~	~~4~~
~~GEOL A221~~	~~Historical Geology~~	~~4~~
~~Upper division Geological Sciences electives~~		~~8~~
~~Other Geological Sciences electives~~		~~2 or more~~

FACULTY

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Mark Rivera, Term Instructor, marivera@uaa.alaska.edu
Erin Shea, Assistant Professor

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

1a. School or College	1b. Division	1c. Department
CH College of Health	AHLS Division of Health Safety	MA Medical Assisting

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
MA	A140	N/A	2-3	(1+3-6)

6. Complete Course Title
Healthcare Documentation

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☒ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other CCG (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions
- ☐ General Education Requirement

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2015 To: Fall/9999

12. ☐ Cross Listed with N/A

☐ Stacked with N/A

Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Medical Assisting AAS	April 6, 2015	Robin Wahto
2.		
3.		

Initiator Name (typed): Robin Wahto Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 4-7-15
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 4-1-15

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Instruction and practice in transcribing healthcare providers' medical dictation using transcription software and formatting of medical reports utilizing transcription techniques and guidelines. Introduction to the electronic health record (EHR), including practice entering clinical notes in an EHR. Examination of health information literacy, including methods for finding, evaluating and using health information. SPECIAL NOTE: Two (2) credits of this course are required for the Medical Assisting AAS degree. Students wishing to specialize in medical transcription may wish to register for three (3) credits, which requires the transcribing of additional medical reports.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
MA A101 with a minimum grade of "C" or concurrent enrollment

16b. Co-requisite(s) *(concurrent enrollment required)*
N/A

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*
45 wpm keyboarding in word processing

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Change of course title, description, and content to align with current healthcare documentation practices.

			☐ Approved ☐ Disapproved	Dean/Director of School/College	Date
Initiator (faculty only) Robin Wahto Initiator (TYPE NAME)		Date			
☐ Approved ☐ Disapproved	Department Chair	Date	☐ Approved ☐ Disapproved	Undergraduate/Graduate Academic Board Chair	Date
☐ Approved ☐ Disapproved	College/School Curriculum Committee Chair	Date	☐ Approved ☐ Disapproved	Provost or Designee	Date

University of Alaska Anchorage
College of Health
Course Content Guide

Department:	MA: Medical Assisting	Date: Spring 2015
Course Number:	MA A140	
Course Title:	Healthcare Documentation	
Credits:	2 – 3 credits	

I Course Description

Instruction and practice in transcribing healthcare providers' medical dictation using transcription software and formatting of medical reports utilizing transcription techniques and guidelines. Introduction to the electronic health record (EHR), including practice entering clinical notes in an HER. Examination of health information literacy, including methods for finding, evaluating, and using health information.

SPECIAL NOTE: Two (2) credits of this course are required for the Medical Assisting AAS degree. Students wishing to specialize in medical transcription may wish to register for three (3) credits, which requires the transcribing of additional medical reports.

II Course Design

A. Designed for medical assisting, medical office support, and healthcare documentation students wishing to learn entry-level documentation skills.
B. Variable credits: 2 to 3 credits.
C. Total time of student involvement:
    1. Two (2) credits: 90 hours per semester.
        a. One (1) lecture hour per week for a total of 15 hours.
        b. Three (3) hours of laboratory work per week for a total of 45 hours.
        c. Two (2) hours of outside work per week for a total of 30 hours.
    2. Three (3) credits: 135 hours per semester.
        a. One (1) lecture hour per week for a total of 15 hours.
        b. Six (6) hours of laboratory work per week for a total of 90 hours.
        c. Two (2) hours of outside work per week for a total of 30 hours.

    The lecture component of this course is identical for the two-credit course and the three-credit course. Students registering for three credits will be required to transcribe additional medical reports. This is reflected in total laboratory work required as outlined above.
D. This course (2 credits) is required for the AAS in Medical Assisting.
E. A lab fee is assessed to defray the costs of lab supplies.
F. Course may be taught in any timeframe but not less than three weeks as a two-credit course and four weeks as a three-credit course.
G. This is a revised course.
H. Coordination with UAF, UAS, CIOS, extended sites, and listserv.
I. This course is an introductory course.

III Course Activities

Class is conducted with formal lectures and computer-based assignments, transcription of medical reports, electronic health record exercises, and health information search exercises.

IV Course Prerequisites/Corequisites/Registration Restriction

1. Course Prerequisite/Corequisite: Completion of MA A101, Medical Terminology I, with a grade C or better, or concurrent enrollment.
2. Registration Restriction: 45 wpm keyboarding in word processing.

V Course Evaluation

A. Grades: A-F.
B. Evaluation is based on assignments and preparation of transcribed medical reports.
C. Specific grading criteria are included in the syllabus and discussed at the first class.

VI Course Outline

1.0 Safety
- 1.1 University
- 1.2 Campus
- 1.3 Classroom
- 1.4 Emergency procedures
- 1.5 Online course safety

2.0 The role and responsibilities of the healthcare documentation specialist (HDS)
- 2.1 Job description
- 2.2 HDS role within health information management and workflow
- 2.3 Evolving documentation roles with growth of electronic health record
- 2.4 Medical transcriptionist/editor
- 2.5 Medical scribe
- 2.6 Patient confidentiality
- 2.7 Health Insurance Portability and Accountability Act (HIPAA) guidelines
- 2.8 Quality assurance and accuracy standards including proofreading and editing

3.0 Healthcare documentation technology
- 3.1 Dictation/transcription equipment and software
- 3.2 Electronic health record systems
- 3.3 Speech recognition technology (SRT)

4.0 Usage/style guidelines for medical reports
- 4.1 Transcription of numbers, weights, measures
- 4.2 Use of abbreviations
- 4.3 Punctuation in medical reports
- 4.4 Commas, colons, semicolons, periods and decimals
- 4.5 Hyphenation of medical terms
- 4.6 Capitalization of medical terms
- 4.7 Plural forms of medical terms

5.0 Medical reports
- 5.1 Chart/SOAP note
- 5.2 History and physical
- 5.3 Consultation
- 5.4 Discharge summary
- 5.5 Operative report
- 5.6 Selected reports by medical specialty

6.0 Laboratory terminology
- 6.1 Common laboratory tests
- 6.2 Normal values
- 6.3 Genus and species names

7.0 Guidelines for transcribing medications
- 7.1 Brand and generic names
- 7.2 Dose and frequency
- 7.3 Abbreviations including Joint Commission's "Do Not Use" list (patient safety)
- 7.4 Format

8.0 Introduction to the electronic health record
- 8.1 Purpose, benefits, and barriers to EHR implementation
- 8.2 Health Information Technology for Economic and Clinical Health (HITECH) Act and "meaningful use" standards
- 8.3 Institute of Medicine's core functions of an EHR
- 8.4 Health information and data (function to be emphasized in this course)
- 8.5 Healthcare documentation specialist's role in the EHR
- 8.6 Data versus narrative
- 8.7 Clinical notes—entry practice using EHR program

9.0 Health information literacy
- 9.1 Principles of evidence-based practice (EBP) and the role of information resources
- 9.2 Library orientation—searching skills and practice
- 9.3 Forming a search strategy
- 9.4 Finding, evaluating, selecting, and using information resources
- 9.5 Health information on the Internet
- 9.6 Evaluating websites—authority, accuracy, objectivity, currency, design/usability

10.0 Reference materials
- 10.1 Medical dictionaries
- 10.2 Style/usage manuals
- 10.3 Medical spellcheckers
- 10.4 Pharmaceutical references
- 10.5 Medical and surgical references
- 10.6 Laboratory references
- 10.7 English dictionaries
- 10.8 Professional publications

VII Suggested Texts

Drake, E. A., Pitman, S. C., Dirckx, J. H., & Health Professions Institute. (2014). *Healthcare documentation: Fundamentals & practice* (4th ed.). Boston, MA: Pearson.

VIII Bibliography

Chernecky, C., & Berger, B. (2013). *Laboratory tests and diagnostic procedures* (6th ed.). Philadelphia, PA: Elsevier/Saunders.

Dorland, W. A. N. (2012). *Dorland's illustrated medical dictionary* (32nd ed.). Philadelphia, PA: Elsevier/Saunders.

Eichenwald, S., Petterson, B. J., & Wapola, J. (2014). *Using the electronic health record in the health care provider practice*. Clifton Park, NY: Delmar.

Hughes, P. (Ed.). (2008). *The book of style for medical transcription* (3rd ed.). Modesto, CA: Association for Healthcare Documentation Integrity.

Ireland, P., & Wall, K. (2015). *Quality medical editing for the healthcare documentation specialist*. Boston, MA: Cengage Learning.

Kizior, R. J., & Hodgson, B. B. (current edition). *Saunders nursing drug handbook*. Philadelphia, PA: Elsevier/Saunders.

Stedman. (current edition). *Stedman's plus medical/pharmaceuticals Spellchecker*. Hagerstown, MD: Lippincott, Williams & Wilkins.

IX Instructional Goals and Defined Outcomes

A. The instructor will:

1. Provide medical dictation reports for students to transcribe into medical reports;
2. Present techniques and standard guidelines for transforming medical dictation to transcribed medical reports;
3. Present proofreading/editing guidelines with examples of medical transcription for students to apply proofreading and editing skills;
4. Demonstrate the use of an electronic health record for documentation of healthcare information
5. Discuss methods and resources used to locate and evaluate reliable healthcare information.

B. Student Outcomes/Assessment Procedures

Upon successful course completion, the student will be able to:	**Assessment Procedures:**
1. Use transcription software to prepare medical reports.	Completion of medical reports and transcription tests.
2. Proofread/edit medical reports using healthcare documentation guidelines.	Revision of medical reports and completion of textbook assignments.
3. Enter clinical notes into an electronic health record.	Entry of clinical notes and data in a simulated electronic health record.
4. Find, evaluate, and use reliable health information using library and website searches.	Completion of information search exercises.

Medical Assisting Department
UNIVERSITY of ALASKA ANCHORAGE

M E M O R A N D U M

To: COH Curriculum Committee
Undergraduate Academic Board

From: Robin Wahto, Professor
Medical Assisting

Date: April 6, 2015

Re: Proposed Curriculum Changes

The Medical Assisting Program submits the following curriculum changes for your consideration:

1. Change of title of MA A140 from *Medical Transcription I* to *Healthcare Documentation*. The change of the title and update of the course content aligns the course with current healthcare documentation practices.

2. Increase the selection of courses for the requirement of 8-9 credits from a Selective list for the AAS degree in Medical Assisting. The additional courses in ASL, COHI, EMT, HLTH, HS, NURS, and PHAR allow students the opportunity to take courses in other healthcare disciplines, broadening their knowledge of healthcare.

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

1a. School or College	1b. Department
CH College of Health	Medical Assisting

2. Complete Program Title/Prefix
AAS, Medical Assisting

3. Type of Program

Choose one from the appropriate drop down menu: Undergraduate: Associate of Applied Science or Graduate: CHOOSE ONE

This program is a Gainful Employment Program: ☐ Yes or ☒ No

4. Type of Action:

PROGRAM	PREFIX
☐ Add	☐ Add
☒ Change	☐ Change
☐ Delete	☐ Inactivate

5. Implementation Date (semester/year)
From: Fall/2015 To: Fall/9999

6a. Coordination with Affected Units Department, School, or College: ASL, EMT, PHAR, COHI, NURS, HS, HLTH

Initiator Name (typed): Robin Wahto Initiator Signed Initials: _____
Date:_____

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: 4/7/15

6c. Coordination with Library Liaison Date: 4/6/15

7. Title and Program Description - Please attach the following:

☒ Cover Memo ☒ Catalog Copy in Word using the track changes function. *
*Copy the text directly from the program website of the online catalog and paste into a Word document.

8. Justification for Action
Change of title of MA A140 to align with current healthcare documentation practices. An increase in the course offerings for the required 8-9 credits of selective courses provides students the opportunity to take courses in related healthcare fields; this helps broaden students' foundational knowledge of healthcare and to expose students to other disciplines within healthcare.

Initiator (faculty only)	Date		☐ Approved ☐ Disapproved	Dean/Director of School/College	Date
Robin Wahto Initiator (TYPE NAME)					
☐ Approved ☐ Disapproved	Department Chair	Date	☐ Approved ☐ Disapproved	Undergraduate/Graduate Academic Board Chair	Date
☐ Approved ☐ Disapproved	College/School Curriculum Committee Chair	Date	☐ Approved ☐ Disapproved	Provost or Designee	Date

Admission Requirements

1. Satisfy the Application and Admission Requirements for Associate Degree Programs.
2. Submit University of Alaska Anchorage application for admission and required transcripts.
3. Take UAA-approved English and math placement tests. Call (907) 786-4500 for testing information.
4. Call (907) 786-6933 to make an appointment with a Medical Assisting academic advisor prior to registering for classes.

Advising

Medical Assisting courses are offered in fall and spring semesters. A six-week office practice (externship) begins in May. Some courses are offered only once per year. Students should meet with an academic advisor prior to registering for classes in order to determine the best sequencing of courses for their program of study. Part-time students are welcome.

Graduation Requirements

- Complete the General University Requirements for Associate of Applied Science Degrees.
- Complete the General Course Requirements for Associate of Applied Science Degrees (15 credits). (Completion of BIOL A100 and PSY A150 fulfill the requirement of 6 credits of mathematics, humanities, social sciences or natural sciences.)
- Complete the Major Requirements listed below, including:
    - Preparation for the Certified Medical Assistant (CMA) Examination requirements, and
    - Additional Major Requirements.

Major Requirements

Preparation for the Certified Medical Assistant (CMA) Examination

Demonstrate the following, or complete preparatory courses as recommended by the medical assisting academic advisor.

- Placement into MATH A055 or above, or completion of MATH A054 with a minimum grade of C.

- Placement into ENGL A111 or above, or completion, with a minimum grade of C, of PRPE A107 and PRPE A108, or ENGL A109.
- Recommended keyboarding skill of 45 wpm or completion of keyboarding course(s).
- Completion of all required courses with a grade of C or better.

BIOL A100	Human Biology	3
Select one of the following:		3
CIS A105	Introduction to Personal Computers and Application Software	
CIOS A130A, CIOS A135A and 1 additional credit of CIOS coursework		
MA A101	Medical Terminology	3
MA A104	Essentials of Human Disease	3
MA A120	Medical Office Procedures	4
MA A140	Healthcare Documentation	2
MA A220	Coding for the Medical Office	3
MA A230	Billing and Insurance for the Medical Office	3
MA A250	Clinical Procedures I	4
MA A255	Clinical Procedures II	4
MA A295	Medical Office Externship	5
PSY A150	Lifespan Development	3
Total Credits		40

Successful completion of the above-listed 40 credits is required to be eligible to sit for the CMA Examination.

Additional Information Regarding MA A295

- A recent physical examination is required prior to the beginning of the externship. Each student must submit a physical examination that certifies the student is free from infectious diseases and physically able to participate in the externship portion of the program.
- Current Healthcare Provider (American Heart Association) or Professional Rescuer (American Red Cross) certificate in CPR/AED for infants, children and adults, and first aid certification are required prior to the start of externship and must be kept current throughout the externship course.
- Current immunizations, proof of medical insurance and criminal background checks are required by some medical offices which serve as medical office externship sites. The cost to meet these requirements is the responsibility of the student. Students who are injured while completing externship assignments are responsible for all associated medical costs. Students are strongly encouraged to maintain personal medical insurance.

- Transportation to off-campus externship sites is the responsibility of the student.

Additional Major Requirements

Select from the following:		8-9
ACCT A101	Principles of Financial Accounting I	
or ACCT A120	Bookkeeping for Business I	
ASL A101	Elementary American Sign Language	
DN A101	Principles of Nutrition	
or DN A203	Nutrition for Health Sciences	
EMT A110	Emergency Trauma Technician	
or EMT A130	Emergency Medical Technician	
HLTH a101	Introduction to Health Occupations	
MA A240	Medical Transcription II	
MA A320	Advanced Case Studies in Medical Coding	
MEDT A101	Phlebotomy Procedures	
or COHI A201	Specimen Collection for Non-laboratory Personnel	
or MEDT A195A	Phlebotomy Practicum	
NURS A101	Introduction to Nursing	
PHAR A101	Introduction to Pharmacy	
RADT A101	Radiation Protection and Biology for Limited Radiography Professionals	
Electives		0-3

A minimum of 60 credits is required for this degree.

Admission Requirements

1. Satisfy the Application and Admission Requirements for Associate Degree Programs.
2. Submit University of Alaska Anchorage application for admission and required transcripts.
3. Take UAA-approved English and math placement tests. Call (907) 786-4500 for testing information.
4. Call (907) 786-~~6928~~6933 to make an appointment with a Medical Assisting academic advisor prior to registering for classes.

Advising

Medical Assisting courses are offered in fall and spring semesters. A six-week office practice (externship) begins in May. Some courses are offered only once per year. Students should meet with an academic advisor prior to registering for classes in order to determine the best sequencing of courses for their program of study. Part-time students are welcome.

Graduation Requirements

- Complete the General University Requirements for Associate of Applied Science Degrees.
- Complete the General Course Requirements for Associate of Applied Science Degrees (15 credits). (Completion of BIOL A100 and PSY A150 fulfill the requirement of 6 credits of mathematics, humanities, social sciences or natural sciences.)
- Complete the Major Requirements listed below, including:
    - Preparation for the Certified Medical Assistant (CMA) Examination requirements, and
    - Additional Major Requirements.

Major Requirements

Preparation for the Certified Medical Assistant (CMA) Examination

Demonstrate the following, or complete preparatory courses as recommended by the medical assisting academic advisor.

- Placement into MATH A055 or above, or completion of MATH A054 with a minimum grade of C.

- Placement into ENGL A111 or above, or completion, with a minimum grade of C, of PRPE A107 and PRPE A108, or ENGL A109.
- Recommended keyboarding skill of 45 wpm or completion of keyboarding course(s).
- Completion of all required courses with a grade of C or better.

BIOL A100	Human Biology	3
Select one of the following:		3
CIS A105	Introduction to Personal Computers and Application Software	
CIOS A130A, CIOS A135A and 1 additional credit of CIOS coursework		
MA A101	Medical Terminology	3
MA A104	Essentials of Human Disease	3
MA A120	Medical Office Procedures	4
MA A140	~~Medical Transcription I~~ Healthcare Documentation	2
MA A220	Coding for the Medical Office	3
MA A230	Billing and Insurance for the Medical Office	3
MA A250	Clinical Procedures I	4
MA A255	Clinical Procedures II	4
MA A295	Medical Office Externship	5
PSY A150	Lifespan Development	3
Total Credits		40

Successful completion of the above-listed 40 credits is required to be eligible to sit for the CMA Examination.

Additional Information Regarding MA A295

- A recent physical examination is required prior to the beginning of the externship. Each student must submit a physical examination that certifies the student is free from infectious diseases and physically able to participate in the externship portion of the program.
- Current Healthcare Provider (American Heart Association) or Professional Rescuer (American Red Cross) certificate in CPR/AED for infants, children and adults, and first aid certification are required prior to the start of externship and must be kept current throughout the externship course.
- Current immunizations, proof of medical insurance and criminal background checks are required by some medical offices which serve as medical office externship sites. The cost to meet these requirements is the responsibility of the student. Students who are injured while completing externship assignments are responsible for all associated medical costs. Students are strongly encouraged to maintain personal medical insurance.

- Transportation to off-campus externship sites is the responsibility of the student.

Additional Major Requirements

Select from the following:		8-9
ACCT A101	Principles of Financial Accounting I	
or ACCT A120	Bookkeeping for Business I	
ASL A101	Elementary American Sign Language	
DN A101	Principles of Nutrition	
or DN A203	Nutrition for Health Sciences	
EMT A110	Emergency Trauma Technician	
or EMT A130	Emergency Medical Technician	
HLTH a101	Introduction to Health Occupations	
MA A240	Medical Transcription II	
MA A320	Advanced Case Studies in Medical Coding	
MEDT A101	Phlebotomy Procedures	
~~MEDT A110~~	~~Specimen Processing~~	
or COHI A201	Specimen Collection for Non-laboratory Personnel	
or MEDT A195A	Phlebotomy Practicum	
NURS A101	Introduction to Nursing	
PHAR A101	Introduction to Pharmacy	
RADT A101	Radiation Protection and Biology for Limited Radiography Professionals	
Electives		0-3

A minimum of 60 credits is required for this degree.

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

1a. School or College	1b. Division	1c. Department
CH College of Health	ADHS Div of Human Svs Health Sci	Human Services

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
HUMS	A124			(+)

6. Complete Course Title
Introductin to the Physiology and Pharmacology of Substance Abuse
Int toPhy and Phar of Sub Abs
Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☐ Add *or* ☐ Change *or* ☒ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions
- ☐ General Education Requirement

9. Repeat Status choose one # of Repeats Max Credits

10. Grading Basis ☐ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: 05/2015 To: /9999

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

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. AAS in Human Services	4/7/2015	Jo Ann Bartley
2.		
3.		

Initiator Name (typed): Yvonne Chase Initiator Signed Initials: _____ Date: _____

13b. Coordination Email Date: 4/7/2015
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 4/7/2015

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*

16b. Co-requisite(s) *(concurrent enrollment required)*

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Low student enrollment; course not offered on a consistent basis; part of prioritization process.

Initiator (faculty only) Date
Yvonne Chase
Initiator (TYPE NAME)

☐ Approved ☐ Disapproved Department Chair Date

☐ Approved ☐ Disapproved College/School Curriculum Committee Chair Date

☐ Approved ☐ Disapproved Dean/Director of School/College Date

☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chair Date

☐ Approved ☐ Disapproved Provost or Designee Date

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

1a. School or College	1b. Division	1c. Department
CH College of Health	ADHS Div of Human Svs Health Sci	Human Services

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
HUMS	A226			(+)

6. Complete Course Title
Intervention Continuum in Substance Abuse Counseling
Int Cont in Sub Abuse Consel
Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☐ Add *or* ☐ Change *or* ☒ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions
- ☐ General Education Requirement

9. Repeat Status choose one # of Repeats Max Credits

10. Grading Basis ☐ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: 05/2015 To: /9999

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

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. AAS in Human Services	4/7/2015	Jo Ann Bartley
2.		
3.		

Initiator Name (typed): Yvonne Chase Initiator Signed Initials: _____ Date: _____

13b. Coordination Email Date: 4/7/2015
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 4/7/2015

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*

16b. Co-requisite(s) *(concurrent enrollment required)*

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Low student enrollment; course offerings not available on a consistent basis; part of prioritization process.

Initiator (faculty only) Date	☐ Approved ☐ Disapproved Dean/Director of School/College Date
Yvonne Chase Initiator (TYPE NAME)	
☐ Approved ☐ Disapproved Department Chair Date	☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chair Date
☐ Approved ☐ Disapproved College/School Curriculum Committee Chair Date	☐ Approved ☐ Disapproved Provost or Designee Date

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

1a. School or College	1b. Division	1c. Department
CH College of Health	ADHS Div of Human Svs Health Sci	Human Services

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
HUMS	A424			(+)

6. Complete Course Title
Advanced Counseling for Human Service Professionals
Adv Counseling-Hum Serv Profes
Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☐ Add *or* ☐ Change *or* ☒ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions
- ☐ General Education Requirement

9. Repeat Status choose one # of Repeats Max Credits

10. Grading Basis ☐ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: 05/2015 To: /9999

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

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. BHS	4/7/2015	Jo Ann Bartley
2.		
3.		

Initiator Name (typed): Yvonne Chase Initiator Signed Initials: _____ Date: _____

13b. Coordination Email Date: 4/7/2015
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 4/7/2015

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*

16b. Co-requisite(s) *(concurrent enrollment required)*

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Curriculum updated and combined with HUMS A434 to become HUMS A435. Course no longer requred in BHS degree.

Initiator (faculty only) Date
Yvonne Chase
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chair Date

☐ Approved
☐ Disapproved
College/School Curriculum Committee Chair Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chair Date

☐ Approved
☐ Disapproved
Provost or Designee Date

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

1a. School or College	1b. Division	1c. Department
CH College of Health	ADHS Div of Human Svs Health Sci	Human Services

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
HUMS	A434			(+)

6. Complete Course Title
Group Facilitation for Human Service Professionals
Group Facilitation-Hum Ser Pro
Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☐ Add *or* ☐ Change *or* ☒ Delete

If a change, mark appropriate boxes:

☐ Prefix ☐ Course Number
☐ Credits ☐ Contact Hours
☐ Title ☐ Repeat Status
☐ Grading Basis ☐ Cross-Listed/Stacked
☐ Course Description ☐ Course Prerequisites
☐ Test Score Prerequisites ☐ Co-requisites
☐ Automatic Restrictions ☐ Registration Restrictions
☐ Class ☐ Level ☐ General Education Requirement
☐ College ☐ Major
☐ Other (please specify)

9. Repeat Status choose one # of Repeats Max Credits

10. Grading Basis ☐ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: 05/2015 To: /9999

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

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1.		
2.		
3.		

Initiator Name (typed): Yvonne Chase Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 4/7/2015
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 4/7/2015

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*

16b. Co-requisite(s) *(concurrent enrollment required)*

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Curriculum updated and combined with HUMS A424 to become HUMS A435. Course no longer requred in BHS degree.

Initiator (faculty only) Date
Yvonne Chase
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chair Date

☐ Approved
☐ Disapproved
College/School Curriculum Committee Chair Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chair Date

☐ Approved
☐ Disapproved
Provost or Designee Date

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

1a. School or College	1b. Division	1c. Department
CH College of Health	ADHS Div of Human Svs Health Sci	Human Services

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
HUMS	A495	A495A	3.0	(1+9)

6. Complete Course Title
Human Services Practicum III

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions
- ☐ General Education Requirement
- ☒ Other Updated CCG (please specify)

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2015 To: /9999

12. ☐ Cross Listed with N/A
☐ Stacked with N/A
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Bachelors degree in Human Services	4/7/2015	Jo Ann Bartley
2.		
3.		

Initiator Name (typed): Yvonne Chase Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 4/7/2015
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 4/7/2015

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Placement in an agency provides students with advancing levels of responsibility in direct client services and/or specialized activities/projects while increasing their professional development. Weekly concurrent classroom seminars required. Students are required to complete 125 agency placement hours.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
HUMS A295B with a grade of C or better

16b. Co-requisite(s) *(concurrent enrollment required)*
N/A

16c. Other Restriction(s)
☐ College ☒ Major ☒ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*
Admitted to the Bachelor of Human Services degree with Senior standing

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Update course number for consistency.

Initiator (faculty only) Date
Yvonne Chase
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chair Date

☐ Approved
☐ Disapproved
College/School Curriculum Committee Chair Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chair Date

☐ Approved
☐ Disapproved
Provost or Designee Date

University of Alaska Anchorage
College of Health
Course Content Guide

I.	**Date of Initiation**	Spring 2015
II.	**Curriculum Action Request**	
A.	College	College of Health
B.	Course Subject	Human Services
C.	Course Number	HUMS A495
D.	Number of Credits	3.0
E.	Contact Hours	(1+9)
F.	Course Program	Bachelors Degree in Human Services
G.	Course Title	Human Services Practicum III
H.	Grading Basis	A-F
I.	Implementation Date	Fall 2015
J.	Cross-listed/Stacked	N/A
K.	Course Description	Placement in an agency provides students with advancing levels of responsibility in direct client services and/or specialized activities/projects while increasing their professional development. Weekly concurrent classroom seminars required. Students are required to complete 125 agency placement hours.
L.	Course Prerequisites	HUMS A295B with a grade C or better
M.	Test Scores	N/A
N.	Course Co-Requisite	N/A
O.	Other Restrictions	Major and class
P.	Registration Restrictions	Admitted to the Bachelor of Human Services degree with Senior standing
Q.	Course Fees	Yes

III. Instructional Goals and Student Learning Outcomes

A. The instructor will:

1. Provide the student with an opportunity to integrate the knowledge and skills gained in the classroom and build on prior practicum experiences to facilitate more comprehensive service delivery.
2. Examine the various service delivery methods and resources in the community.
3. Provide support for student engagement in meaningful client interaction in order to enhance the student's ability to;
    a. Evaluate client strengths/challenges.
    b. Design appropriate treatment plans.
4. Explore with the students the application of ethical standards of human services in the work place.
5. Examine with students through classroom and placement activities the student's competency in working with diverse populations.
6. Distinguish for students the array of career options available in the field of human services.
7. Provide students guidance regarding competence in applying case management knowledge and skills.
8. Examine with students the application of counseling skills to the target populations served by the placement agency.

9. Identify for students the procedures necessary to facilitate effective case management including the impact that trauma has had on many clients seeking services.

B. Upon completion of this course, the student will be able to:

Student Learning Outcomes and Assessment Measures	
Student Learning Outcomes	**Assessment Measures**
1. Analyze the multiple roles of human services workers as they relate to service provision.	Written assignments Class discussion Journal assignments
2. Determine access to community resources and service delivery methods.	Written assignments Class discussion
3. Demonstrate competence in: a. Evaluating client strength/challenges b. Designing appropriate treatment/interventions plans c. Maintaining professional boundaries	Class discussion Journal assignments
4. Demonstrate the ethical standards of the human services field into field work practices.	Journal assignments Small group activities
5. Identify culturally competent interventions to work with diverse populations.	Written assignments Class discussion
6. Explore the available range of career options in the human services field.	Presentations Class discussion
7. Apply appropriate case management interventions with an awareness of trauma informed care.	Presentations Class discussion
8. Demonstrate professional development, knowledge and skills of the human services professional within the practicum context.	Written assignments Class discussion Journal assignments Presentations

IV. Course Level Justification

The course requires that students demonstrate a higher level of thinking skills and the ability to apply course materials to solve complex problems. Builds on material from other upper division courses.

V. Topical Course Outline

1.0 Safety: General Campus Safety

2.0 Starting the Practicum Process
- 2.1 Welcome to internship/practicum placement
- 2.2 Personal development from the practicum experience
- 2.3 Professional development
- 2.4 Civic development

3.0 The Developmental Stages of Practicum Placement
- 3.1 Examining the developmental stage model
- 3.2 Connecting the stages and civic development
- 3.3 Engaged learning
- 3.4 Experiential learning
- 3.5 Self-understanding

4.0 Internship Essentials: Tools for Staying Engaged
- 4.1 Attitudes and values
- 4.2 Skills
- 4.3 Personal resources
- 4.4 Knowledge
- 4.5 Empowerment

5.0 Understanding of Yourself in Relation to Practicum
- 5.1 Dealing with difference
- 5.2 Recognizing reaction patterns

6.0 The Anticipation Stage
- 6.1 Becoming a more engaged learner
- 6.2 Making the commitment
- 6.3 Working through the trials and tribulations of anticipation

7.0 Internship Essentials: The Learning Contract and Supervision
- 7.1 The learning agreement contract
- 7.2 Getting the most from supervision
- 7.3 Communicating questions and concerns with supervisors

8.0 Managing Value Differences with Clients
- 8.1 Recognizing the traps, assumptions and stereotypes of client profiles
- 8.2 Accepting the client
- 8.3 Being accepted by the client
- 8.4 Specific client issues
- 8.5 Personal safety of the professional

9.0 The Exploration Stage
- 9.1 Focusing on growth and development
- 9.2 Remaining engaged

10.0 Advanced Tools for Clarification
- 10.1 Sources of power
- 10.2 Sources of support
- 10.3 Framing and reframing
- 10.4 Taking responsibility
- 10.5 A meta-model for breaking through barriers: eight steps to creating change

11.0 Navigating the Internship Site
- 11.1 Background information
- 11.2 Organizational structure
- 11.3 Organizational politics
- 11.4 Organizations as cultures
- 11.5 External environment

12.0 Finding the Best of the Community
- 12.1 Community context and the civic professional
- 12.2 Community structure
- 12.3 A community inventory

13.0 Professional, Ethical, and Legal Issues
- 13.1 Internship issues
- 13.2 Professional issues: Responsibilities and relationships
- 13.3 Ethical issues: Principles and decisions
- 13.4 Legal issues: Laws and judicial interpretations
- 13.5 Grappling with dilemmas
- 13.6 Managing a professional crisis

14.0 The Culmination Stage
- 14.1 Wrap up documentation for student records
- 14.2 Closure with supervisors
- 14.3 Closure with clients

VI. Suggested Text

Sweitzer, H. F., & King, M. (2014). *The successful internship: Personal, professional, and civic development in experiential learning* (4th ed.). Belmont, CA: Brooks/Cole.

VII. Bibliography and Resources

Baird, B. N. (2011). *The internship, practicum and field placement handbook: A guide for the helping professions* (6th ed.). Upper Saddle River, NJ: Person Prentice Hall.

Colby, A., Erlich, T., Sullivan, W. M., & Dolle, J. R. (2011). *Rethinking under-graduate business education: Liberal learning for the profession.* San Francisco, CA. Jossey-Bass.

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Corey, G., Corey, M. S., & Callanan, P. (2011). *Issues and ethics in the helping professions* (8th ed.). Belmont, CA: Brooks and Cole.

Dillar, J. V. (2011). *Cultural diversity: A primer for human services* (4th ed.). Pacific Grove, CA: Brooks and Cole.

Godwin, A. (2011). *How to solve your people problems: Dealing with your difficult relationships.* Brentwood, TN: Rosenbaum.

Hodge, D. C., Baxter, M. B., & Hayes, C. A. (2009). Engaged learning: Enabling self-authorship and effective practice. *Liberal Education, 95*(4), 16-22.

Kiser, P. M. (2011). *Getting the most from your human service internship: Learning from experience* (3rd ed.). Belmont, CA: Brooks and Cole.

Leppaniemi, A. (2009). Update on global trends in trauma. *Journal of Trauma, 11*, 37-47.

Levine, J. (2012). *Working with people: The helping process* (9th ed.). New York, NY: Longman.

Lum, D. (2011). *Culturally competent practice: A framework for understanding diverse groups & justice issues* (4th ed.). Pacific Grove, CA: Brooks and Cole.

Meyers Kiser, P. (2012). *The human services internship: Getting the most from your experience.* Belmont, CA: Brooks and Cole.

O'Neil, N. (2010). Internships as a high impact practice: Some reflections on quality. *Peer Review, 12*(4), 4-8.

Royse, D., Dhooper, S. S., & Rompf, E. L. (2011). *Field instruction: A guide for social work students* (5th ed.). Upper Saddle River, NJ: Prentice Hall.

Schlosser, L., Miville, M., Gelso, C., Pannu, R., Liu, W., Touradji, P., & Holloway, P. (2011). Multicultural issues in graduate advising relationships. *Journal of Career Development, 38*, 19-42.

Wang, J., & Hutchins, H. (2010). Crisis management in higher education: What have we learned from Virginia Tech? *Advances in Developing Human Resources, 12*, 552-572.

Department of Human Services
University of Alaska Anchorage

3211 Providence Drive, PSB 212
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April 7, 2015

To: COH Curriculum Committee

From: Human Services Department

The Department of Human Services is making the following course / program changes:

Deletions:

- HUMS A124 Introduction to Physiology and Pharmacology of Substance Abuse
- HUMS A226 Intervention Continuum in Substance Abuse Counseling
- HUMS A424 Advanced Counseling (See below)
- HUMS A434 Group Facilitation (HUMS A424 and A434 have been replaced by A435 Individual and Group Facilitation)

Catalog copy for Conflict Resolution Occupational Endorsement Certificate is being updated to replace HUMS A434 with HUMS A435 - Individual and Group Facilitation

Rename HUMS A495A (Human Services Practicum III) – HUMS 495B was eliminated and replaced with HUMS A496, a Capstone course in a curriculum update in 2014. As a result, the "A" is being removed from HUMS A495A.

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

1a. School or College	1b. Department
CH College of Health	Human Services

2. Complete Program Title/Prefix
Occupational Endorsement Certificate in Conflict Resolution

3. Type of Program

Choose one from the appropriate drop down menu: Undergraduate: Occupational Endorsement Certificate or Graduate: CHOOSE ONE

This program is a Gainful Employment Program: ☐ Yes or ☒ No

4. Type of Action:

PROGRAM	PREFIX
☐ Add	☐ Add
☒ Change	☐ Change
☐ Delete	☐ Inactivate

5. Implementation Date (semester/year)
From: 5/2015 To: /9999

6a. Coordination with Affected Units Department, School, or College: Human Services, COH

Initiator Name (typed): Yvonne Chase Initiator Signed Initials: _____
Date:_____

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: 4/7/2015

6c. Coordination with Library Liaison Date: 4/7/2015

7. Title and Program Description - Please attach the following:

☒ Cover Memo ☒ Catalog Copy in Word using the track changes function. *
*Copy the text directly from the program website of the online catalog and paste into a Word document.

8. Justification for Action
Update program requirements.

Initiator (faculty only) Date	☐ Approved ☐ Disapproved Dean/Director of School/College Date
Yvonne Chase Initiator (TYPE NAME)	
☐ Approved ☐ Disapproved Department Chair Date	☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chair Date
☐ Approved ☐ Disapproved College/School Curriculum Committee Chair Date	☐ Approved ☐ Disapproved Provost or Designee Date

Occupational Endorsement Certificate in Conflict Resolution

The Human Services Occupational Endorsement Certificate in Conflict Resolution provides students the opportunity to acquire skills used in various conflict resolution methods used in human service agencies. The 18-credit program provides a balanced education in the study of family mediation, alternative dispute resolution, paraprofessional counseling and group facilitation. Instruction is delivered through classroom lectures, demonstrations, case studies and role plays.

Admission Requirements

Satisfy the Application and Admission Requirements for Occupational Endorsement Certificate Programs (catalog.uaa.alaska.edu/admissions/undergraduate).

Graduation Requirements

- Satisfy the General University Requirements for Occupational Endorsement Certificates (catalog.uaa.alaska.edu/undergraduateprograms/oecrequirements).
- Complete the Program Requirements below.

Program Requirements

HUMS A223	Introduction to Paraprofessional Counseling I	3
HUMS A224	Conflict and Collaborative Systems	3
HUMS A324	Introduction to Paraprofessional Counseling II	3
HUMS A333	Alternative Dispute Resolution	3
HUMS A334	Family Mediation	3
HUMS A435	Individual and Group Facilitation for Human Services Professionals	3
Total Credits		18

A total of 18 credits is required for the occupational endorsement certificate.

Program Student Learning Outcomes

Students completing this certificate are prepared to:

- Understand the nature of conflict through theory and collaborative practices.
- Demonstrate enhanced communication skills and interpersonal skills to include negotiation.
- Incorporate conflict management skills in human service practice.
- Integrate concepts of diversity into various collaborative practices.

Occupational Endorsement Certificate in Conflict Resolution

The Human Services Occupational Endorsement Certificate in Conflict Resolution provides students the opportunity to acquire skills used in various conflict resolution methods used in human service agencies. The 18-credit program provides a balanced education in the study of family mediation, alternative dispute resolution, paraprofessional counseling and group facilitation. Instruction is delivered through classroom lectures, demonstrations, case studies and role plays.

Admission Requirements

Satisfy the Application and Admission Requirements for Occupational Endorsement Certificate Programs (catalog.uaa.alaska.edu/admissions/undergraduate).

Graduation Requirements

- Satisfy the General University Requirements for Occupational Endorsement Certificates (catalog.uaa.alaska.edu/undergraduateprograms/oecrequirements).
- Complete the Program Requirements below.

Program Requirements

HUMS A223	Introduction to Paraprofessional Counseling I	3
HUMS A224	Conflict and Collaborative Systems	3
HUMS A324	Introduction to Paraprofessional Counseling II	3
HUMS A333	Alternative Dispute Resolution	3
HUMS A334	Family Mediation	3
HUMS A435	Individual and Group Facilitation for Human Services Professionals	3
~~HUMS A434~~	~~Group Facilitation for Human Service Professionals~~	~~3~~
Total Credits		18

A total of 18 credits is required for the occupational endorsement certificate.

Program Student Learning Outcomes

Students completing this certificate are prepared to:

- Understand the nature of conflict through theory and collaborative practices.
- Demonstrate enhanced communication skills and interpersonal skills to include negotiation.
- Incorporate conflict management skills in human service practice.
- Integrate concepts of diversity into various collaborative practices.

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

1a. School or College	1b. Division	1c. Department
CH College of Health	AHLS Division of Health Safety	Medicial Imaging

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
RADT	A151	N/A	2	(2+0)

6. Complete Course Title
Radiographic Physics

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☒ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other Course Content (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions
- ☐ General Education Requirement

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall /2015 To: Fall/9999

12. ☐ Cross Listed with N/A
☐ Stacked with N/A
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. DMS	April 3, 2015	Ryan Parnell
2. Radiologic Technoloyg RADT	April 3, 2015	Robert McClung
3.		

Initiator Name (typed): Kathryn M Slagle Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: April 3, 2015
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: April 3, 2015

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Provides fundamental knowledge of atomic structure and terminology. Includes the nature and characteristics of radiation, x-ray production and the fundamentals of photon interactions with matter.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
N/A

16b. Co-requisite(s) *(concurrent enrollment required)*
N/A

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*
Departmental Approval

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Change of title more specific to actual content of course. Content has been modified to reflect national association curriculum update.

Initiator (faculty only) Date
Kathryn M Slagle
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chair Date

☐ Approved
☐ Disapproved
College/School Curriculum Committee Chair Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chair Date

☐ Approved
☐ Disapproved
Provost or Designee Date

University of Alaska Anchorage
College of Health
Course Content Guide

I. Date of Initiation: Spring 2015

II. Curriculum Action Request

A. College:	College of Health
B. Course Prefix:	RADT
C. Course Number:	A151
D. Number of Credits:	2
E. Contact Hours:	2+0
F. Course Title:	Radiographic Physics
G. Grading Basis:	A-F
H. Implementation Date:	Fall 2015
I. Cross-listed/Stacked:	N/A
J. Course Description:	Provides fundamental knowledge of atomic structure and terminology. Includes the nature and characteristics of radiation, x-ray production and the fundamentals of photon interactions with matter.
K. Course Prerequisites:	N/A
L. Course Co-requisites:	N/A
M. Other Restrictions:	N/A
N. Registration Restrictions:	Departmental Approval
O. Course Fees:	No

III. Instructional Goals and Student Learning Outcomes

A. Instructional Goals.

The instructor will:

1. Provide a basis for the understanding of the fundamental knowledge regarding the principles of physics.
2. Discuss the nature and characteristics of radiation and how they apply to the formation of medical images.
3. Discuss x-ray production and photon interactions with matter and how they apply to the formation of medical images.
4. Discuss the general components and functions of the tube and filament circuits and how they apply to the formation of medical images.

B. Student Learning Outcomes and Assessment Measures

Student Learning Outcomes	Assessment Measures
Upon completion of this course, the student will be able to:	This outcome will be assessed by one or more of the following:
1. Describe fundamental atomic structure	Assignments and examinations
2. Differentiate between ionizing and nonionizing radiation to include the processes of ionization and excitation	Assignments and examinations
3. Describe the electromagnetic spectrum to include wavelength and frequency and how they relate to velocity	Assignments and examinations

4. Identify the properties of x-rays and wave particle duality	Assignments and examinations
5. State the principles of x-ray production conditions necessary to produce x-radiation to include the x-ray emission spectrum	Assignments and examinations
6. Compare the production of bremsstrahlung with the production of characteristic radiations	Assignments, concept map and examinations
7. Discuss various photon interactions with matter and influencing factors	Assignments, concept map and examinations
8. Define potential difference, current and resistance.	Assignments and examinations
9. Identify components and functions of the tube and filament circuits	Assignments, concept map and examinations
10. Demonstrate a basic understanding of magnetism and electromagnetism	Assignments and examinations
11. Describe forms of particulate radiation to include radioactivity and radioactive decay	Assignments and examinations

IV. Course Level Justification

This course introduces fundamental knowledge required of the profession of radiologic technologists.

V. Topical Course Outline

A. Structure of the Atom
   a. Composition
      i. Nucleus
      ii. Structure
   b. Electron Shells
      i. Binding Energy
      ii. Electron Shells
   c. Ionization and Excitation
   d. Nomenclature
      i. Atomic Number
      ii. Mass Number

B. Nature of Radiation
   a. Radiation
   b. Electromagnetism
   c. Electromagnetic Spectrum
   d. Wave-particle Duality
   e. Properties of X-rays
   f. Particulate
   g. Non-ionizing vs. Ionizing
   h. Radioactivity
      i. Radioactive Decay
      ii. Half-life (T½)

C. Electricity
   a. Electrostatics
   b. Electrostatic Charge

c. Electrostatic Laws
d. Electrical Potential
e. Electrification
f. Electrodynamics
g. Conductors and Insulators
h. Electric Circuits

D. Magnetism
a. Nature of Magnetism
b. Classification of Magnets
c. Magnetic Laws

E. Electromagnetism
a. Oersted's Experiment
b. Laws of Electromagnetic Induction
c. Faraday's Law
d. Lenz's Law
e. Self-induction
f. Mutual-induction
g. Electromechanical Devices

F. X-ray Circuit
a. Electricity
b. Current
i. Direct
ii. Alternating
c. Resistance
d. Protective Devices
e. Transformers
i. Line Compensation
ii. Autotransformer
iii. Step Up
iv. Step Down
f. Components and Functions
i. Primary Side of X-ray Circuit
ii. Secondary Side of X-ray Circuit
iii. Filament Circuit
g. Rectification
h. Generators
i. Single Phase Power
ii. High Frequency Generator
iii. Capacitor Discharge Generator
iv. Voltage Ripple

G. X-Ray Production
a. History
b. Terminology
i. Primary Beam
ii. Remnant Beam
iii. Attenuation
iv. Leakage Radiation

v. Off-focus Radiation
c. Conditions Necessary for Production
i. Source of Electrons
ii. Acceleration of Electrons
iii. Concentration of Electrons
iv. Deceleration of Electrons

H. Target Interactions
a. Bremsstrahlung
b. Characteristic

I. Interaction of Photons with Matter
a. Unmodified Scattering (Coherent)
b. Photoelectric Effect
i. Description
ii. Relation to Atomic Number
iii. Energy of Incident Photon and Resulting Product
iv. Probability of Occurrence
c. Modified Scattering (Compton)
i. Description
ii. Relation to Atomic Number
iii. Energy of Incident Photon and Resulting Product
iv. Probability of Occurrence
d. Pair Production
e. Photodisintegration

VI. Suggested Texts

Bontrager, K. L. (2014). *Textbook of radiographic positioning and related anatomy.* (8th ed.). St. Louis, MO: Mosby.

Bushong, S. C. (2013). *Radiologic science for technologists: Physics, biology, and protection.* (10th ed.). St. Louis, MO: Mosby.

VII. Bibliography

Carlton, R., & Adler, A. (2013). *Principles of radiographic image: An art and a science* (5th ed.). Clifton Park, NY: Delmar.

Ehrlich, R., & Coakes, D. (2013). *Patient care in radiography: With an introduction to medical imaging* (8th ed.). St. Louis, MO: Elsevier.

Graham, D., Cloke, P., & Vosper, M. (2012). *Principles of applications of radiological physics* (6th ed.). St. Louis, MO: Mosby.

Johnston, J., & Fauber, T. (2012). *Essentials of radiographic physics and imaging.* St. Louis, MO: Mosby.

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

1a. School or College	1b. Division	1c. Department
CH College of Health	AHLS Division of Health Safety	Medical Imaging

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
RADT	A161	N/A	3	(3+0)

6. Complete Course Title
Fundamentals of Medical Imaging I
Fund of Medical Imaging I
Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other Course Content (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions
- ☐ General Education Requirement

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2015 To: Fall/9999

12. ☐ Cross Listed with N/A
☐ Stacked with N/A
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Radiologic Technology RADT	April 3, 2015	Robert McClung
2.		
3.		

Initiator Name (typed): Kathryn M Slagle Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: April 3, 2015
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: April 3, 2015

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Provides an overview of the foundations of radiography. Establishes a knowledge base in radiographic equipment, design and in factors that govern the image production process.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
N/A

16b. Co-requisite(s) *(concurrent enrollment required)*
N/A

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*
Departmental Approval

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Course description and content has been modified to reflect national association curriculum update. Course prerequisites have been removed due sequence of courses changed to be in line with national association curriculum update.

Initiator (faculty only) Date
Kathryn M Slagle
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chair Date

☐ Approved
☐ Disapproved
College/School Curriculum Committee Chair Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chair Date

☐ Approved
☐ Disapproved
Provost or Designee Date

University of Alaska Anchorage
College of Health
Course Content Guide

I. Date of Initiation: Spring 2015

II. Curriculum Action Request

A. College:	College of Health
B. Course Prefix:	RADT
C. Course Number:	A161
D. Number of Credits:	3
E. Contact Hours:	3+0
F. Course Title:	Fundamentals of Medical Imaging I
G. Grading Basis:	A-F
H. Implementation Date:	Fall 2015
I. Cross-listed/Stacked:	N/A
J. Course Description:	Provides an overview of the foundations of radiography. Establishes a knowledge base in radiographic equipment, design and in factors that govern the image production process.
K. Course Prerequisites:	N/A
L. Course Co-requisites:	N/A
M. Other Restrictions:	N/A
N. Registration Restrictions:	Departmental Approval
O. Course Fees:	No

III. Instructional Goals and Student Learning Outcomes

A. Instructional Goals.

The instructor will:

1. Discuss radiographic equipment in terms of purpose, components, types and applications.
2. Explain the elements of a radiographic image.
3. Illustrate an effective image analysis method.
4. Describe evaluation and practical considerations in setting standards for acceptable image quality.
5. Explain conversion factors for procedural changes that affect image quality.

B. Student Learning Outcomes and Assessment Measures

Student Learning Outcomes:	Assessment Measures
Upon completion of this course, the student will be able to:	This course outcome will be assessed by one or more of the following:
1. Discuss permanent installation of radiographic equipment in terms of purpose, components, and applications	Assignments and examinations
2. Identify the components of a diagnostic x-ray tube	Assignments and examinations
3. Explain protocols used to extend x-ray tube	Assignments and examinations
4. Discuss the components and application of automatic exposure devices	Assignments and examinations

5. Assess the requirement for using standardized radiographic techniques and exposure factor considerations involved in technique selection	Assignments and examinations
6. Analyze the relationships of factors that control and affect image exposure	Assignments and examinations
7. Discuss practical considerations in setting standards for acceptable image quality	Assignments and examinations
8. Analyze relationships of factors that control and affect radiographic density and contrast	Assignments and examinations
9. Analyze relationships of factors that control recorded detail and parameters for evaluating visibility of detail	Assignments, concept map and examinations
10. Distinguish between acceptable and unacceptable image quality	Assignments, concept map and examinations

IV. Course Level Justification

This course introduces fundamental knowledge required of profession of radiologic technologists.

V. Topical Course Outline

A. Radiographic Equipment
   a. Permanent Installation
   b. Tubes
   c. Collimators
   d. Tables
   e. Control Panels
   f. Tube Stands
   g. Wall Units
   h. Mobile Units
      i. Components
      ii. Purpose
      iii. Application

B. Diagnostic X-ray Tube
   a. Construction
   b. Extending Tube Life
   c. Warm Up Procedures
   d. Exposure Limits
   e. Thermal Capacity
   f. X-ray Emission Spectra
      i. Continuous Spectrum
      ii. Discrete Spectrum
      iii. Minimum Wavelength
      iv. Influencing Factors

C. Automatic Exposure Control
   a. Devices
      i. Ionization Chambers
      ii. Solid State Detector
   b. Minimum Response Time
   c. Back Up Time

d. Alignment / Positioning Considerations
    i. Cell Locations
    ii. Cell Size
    iii. Cell Sensitivity
    iv. Compensation Considerations
    v. Patient Size
    vi. Pathology
    vii. Field Size
    viii. Image Receptor

D. Exposure Factor Formulation
a. Purpose
b. Standardization
c. Consistency
d. Considerations
e. Choice of Technique
f. Patient Factors
g. Image Processing
h. Types
    i. Optimum kVp
    ii. Variable kVp
    iii. Automatic Exposure
    iv. Anatomically Programmed Radiography

E. Principles of Imaging
a. Exposure Factors
    i. Beam Quantity - mAs
    ii. Beam Quality - kVp
    iii. Distance
b. Density
    i. Controlling Factors
    ii. Influencing Factors
c. Contrast
    i. Image Contrast
    ii. High Contrast / Short Grey Scale
    iii. Low Contrast / Long Grey Scale
    iv. Controlling and Influencing Factors
d. Subject Contrast
e. Image Receptor Contrast
f. Recorded Detail
    i. Spatial Resolution
    ii. Geometric
    iii. Motion
    iv. Shape Distortion
    v. Size Distortion
g. Exposure Latitude

F. Exposure Maintenance
a. Reciprocity Law
b. 15% Rule
c. Square Law

d. Inverse Square Law

G. Imaging Standards
   a. Purpose
   b. Problem Solving Process
   c. Role of Radiographer
      i. Determine Cause
      ii. Determine Corrective Action

H. Fundamentals of Radiation Safety
   a. ALARA Concept
   b. Personnel Protection
   c. Protection of Patient

VI. Suggested Texts

Bontrager, K. L. (2014). *Textbook of radiographic positioning and related anatomy* (8th ed.). St. Louis, MO: Mosby.

Bushong, S. C. (2013). *Radiologic science for technologists: Physics, biology, and protection* (10th ed.). St. Louis, MO: Mosby.

Martensen, K. (2011). *Radiographic image analysis* (3rd ed.). St. Louis, MO: Mosby.

VII. Bibliography

Carlton, R., & Adler, A. (2013). *Principles of radiographic image: An art and a science* (5th ed.). Clifton Park, NY: Delmar.

Ehrlich, R., & Coakes, D. (2013). *Patient care in radiography: With an introduction to medical imaging* (8th ed.). St. Louis, MO: Elsevier.

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Johnston, J., & Fauber, T. (2012). *Essentials of radiographic physics and imaging.* St. Louis, MO: Mosby.

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

1a. School or College	1b. Division	1c. Department
CH College of Health	AHLS Division of Health Safety	Medical Imaging

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
RADT	A171	N/A	3	(3+0)

6. Complete Course Title
Fundamentals of Medical Imaging II
Fund of Medical Imaging II
Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other Course Content (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions
- ☐ General Education Requirement

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2015 To: Fall/9999

12. ☐ Cross Listed with N/A
☐ Stacked with N/A
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Radiologic Technology RADT	April 3, 2015	Robert McClung
2.		
3.		

Initiator Name (typed): Kathryn M Slagle Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: April 3, 2015
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: April 3, 2015

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Introduces concepts that emphasize the importance of image standards, factors that affect image quality, image evaluation and critique. Principles regarding factors that influence the production and recording of radiographic and fluoroscopic images are emphasized.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
RADT A161

16b. Co-requisite(s) *(concurrent enrollment required)*
N/A

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*
Department approval

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Course description and content has been modified to reflect national association curriculum update.

Initiator (faculty only) Date
Kathryn M Slagle
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chair Date

☐ Approved
☐ Disapproved
College/School Curriculum Committee Chair Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chair Date

☐ Approved
☐ Disapproved
Provost or Designee Date

University of Alaska Anchorage
College of Health
Course Content Guide

I. Date of Initiation: Spring 2015

II. Curriculum Action Request

A. College:	College of Health
B. Course Prefix:	RADT
C. Course Number:	A171
D. Number of Credits:	3
E. Contact Hours:	3+0
F. Course Title:	Fundamentals of Medical Imaging II
G. Grading Basis:	A-F
H. Implementation Date:	Fall 2015
I. Cross-listed/Stacked:	N/A
J. Course Description:	Introduces concepts that emphasize the importance of image standards, factors that affect image quality, image evaluation and critique. Principles regarding factors that influence the production and recording of radiographic and fluoroscopic images are emphasized.
K. Course Prerequisites:	RADT A161
L. Course Co-requisites:	N/A
M. Other Restrictions:	N/A
N. Registration Restrictions:	Departmental Approval
O. Course Fees:	No

III. Instructional Goals and Student Learning Outcomes

A. Instructional Goals.

The instructor will:

1. Describe an effective image analysis method.
2. Discuss the role of the radiographer in image analysis.
3. Explain how the radiographer determines image quality.
4. Describe various types of image receptors (IR) systems.
5. Summarize the relationship of factors related to IR systems.
6. Summarize the relationship of factors that influence the production of scatter.
7. Discuss factors that influence the control of scatter reaching the IR.

B. Student Learning Outcomes and Assessment Measures

Student Learning Outcomes:	Assessment Measures
Upon completion of this course, the student will be able to:	This outcome will be assessed by one or more of the following:
1. Evaluate the effects of scatter radiation on the image	Assignments and examinations
2. Describe the operation and application of ways to control the production of scatter radiation	Assignments and examinations
3. Describe the operation and application of ways to control scatter radiation once it is produced	Assignments and examinations

4. Summarize the relationship of factors affecting scatter and secondary radiation	Assignments and examinations
5. Define terminology associated with digital imaging systems	Assignments and examinations
6. Describe various types of digital receptors to include advantages and limits of each	Assignments and examinations
7. Explain digital imaging acquisition, processing and display in relation to the type of digital receptor	Assignments and examinations
8. Describe the histogram and process of histogram analysis	Assignments and examinations
9. Identify components of Picture Archiving and Communications System (PACS)	Assignments, concept map and examinations
10. Discuss elements of a radiographic image	Assignments, class presentation and examinations
11. Apply a problem solving process for image analysis	Assignments, class presentation and examinations
12. Explain image intensification fluoroscopy	Assignments and examinations

VI. Course Level Justification

This course is designed to continue the development of concepts and principles associated with radiographic fundamentals in the production, evaluation, and improvement of radiographic images. This course builds upon foundational information from RADT A161.

V. Topical Course Outline

A. Scatter and Secondary Radiation
   a. Factors
      i. kVp
      ii. Patient
      iii. Exposure Field
   b. Effects
      i. Patient Dose
      ii. Contrast
      iii. Image Quality
      iv. Occupational Exposure

B. Beam Limiting Devices
   a. Purpose
   b. Types
      i. Collimation
      ii. Cylinders

C. Beam Filtration
   a. Purpose
   b. Types
      i. Inherent
      ii. Added
      iii. Compensating Filtration

D. Grids
   a. Purpose

b. Construction
c. Types
    i. Focused
    ii. Parallel
    iii. Linear
    iv. Crossed
    v. Moving
    vi. Stationary
d. Characteristics
    i. Grid Ratio
    ii. Grid Frequency
    iii. Grid Radius
e. Selection
    i. kVp
    ii. Patient / Exam
f. Grid Cutoff
g. Air Gap Technique
    i. Purpose
    ii. Considerations

E. Basic Principles of Digital Radiography
a. Digital Imaging Characteristics
    i. Picture Elements
    ii. Matrix
b. Dynamic Range and Latitude
c. Digital Image Receptors
    i. Computed Radiography
    ii. Digital Radiography
d. Digital Image Acquisition
    i. Computed Radiography
    ii. Digital Radiography
        1. Indirect Capture
        2. Direct Capture
e. Digital Image Processing
    i. Computed Radiography
    ii. Digital Radiography
f. Latent Image Extraction
    i. Digitization
        1. Sampling
        2. Quantization
    ii. Look Up Table
    iii. Histogram Analysis
    iv. Automatic Rescaling
    v. Exposure Indicators

F. Digital Image Display and Storage
a. Manifest Image Enhancement
b. Monitors
c. Picture Archival Computer System (PACS)

G. Image Analysis
a. Image Appearance Characteristics

i. Density / Brightness
ii. Contrast
iii. Recorded Detail
iv. Distortion

b. Standards
c. Purpose
d. Problem Solving Process

H. Fluoroscopy
a. Image intensification
i. Define
ii. Purpose
iii. Tube Components and Functions
1. Input Phosphor
2. Photocathode
3. Electrostatic Lenses
4. Anode
5. Output Phosphor

b. Intensification Principles
i. Brightness Gain
ii. Flux Gain
iii. Minification Gain
iv. Conversation Factor
v. Automatic Brightness Control

c. Resolution
i. Distortion
ii. Quantum Mottle

d. Magnification
e. Viewing and Recording Systems
f. Digital Fluoroscopy

VI. Suggested Texts

Bontrager, K. L. (2014). *Textbook of radiographic positioning and related anatomy* (8th ed.). St. Louis, MO: Mosby.

Bushong, S. C. (2013). *Radiologic science for technologists: Physics, biology, and protection* (10th ed.). St. Louis, MO: Mosby.

Martensen, K. (2011). *Radiographic image analysis* (3rd ed.). St. Louis, MO: Mosby.

Seeram, E. (2009). *Computed tomography: Principles, clinical application, and quality control* (3rd ed.). St. Louis, MO: Saunders.

VII. Bibliography

Carlton, R., & Adler, A. (2013). *Principles of radiographic image: An art and a science* (5th ed.). Clifton Park, NY: Delmar.

Ehrlich, R., & Coakes, D. (2013). *Patient care in radiography: With an introduction to medical imaging* (8th ed.). St. Louis, MO: Elsevier.

Graham, D., Cloke, P., & Vosper, M. (2012). *Principles of applications of radiological physics* (6th ed.). St. Louis, MO: Mosby.

Johnston, J., & Fauber, T. (2012). *Essentials of radiographic physics and imaging.* St. Louis, MO: Mosby.

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

1a. School or College	1b. Division	1c. Department
CH College of Health	AHLS Division of Health Safety	Medical Imaging

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
RADT	A251	N/A	2	(2+0)

6. Complete Course Title
Radiobiology and Protection

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other Course Content (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions
- ☐ General Education Requirement

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2015 To: Fall/9999

12. ☐ Cross Listed with N/A
☐ Stacked with N/A
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Radiologic Technology RADT	April 3, 2015	Robert McClung
2.		
3.		

Initiator Name (typed): Kathryn M Slagle Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: April 3, 2015
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: April 3, 2015

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Provides a comprehensive overview of the principles of radiation biology and protection as they pertain to the interaction of radiation with living systems.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
RADT A171

16b. Co-requisite(s) *(concurrent enrollment required)*
N/A

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*
Departmental Approval

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Course description and content has been modified to reflect national association curriculum update.

Initiator (faculty only) Date
Kathryn M Slagle
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chair Date

☐ Approved
☐ Disapproved
College/School Curriculum Committee Chair Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chair Date

☐ Approved
☐ Disapproved
Provost or Designee Date

University of Alaska Anchorage
College of Health
Course Content Guide

I. Date of Initiation: Spring 2015

II. Curriculum Action Request

A. College:	College of Health
B. Course Prefix:	RADT
C. Course Number:	A251
D. Number of Credits:	2
E. Contact Hours:	2+0
F. Course Title:	Radiobiology and Protection
G. Grading Basis:	A-F
H. Implementation Date:	Fall 2015
I. Cross-listed/Stacked:	N/A
J. Course Description:	Provides a comprehensive overview of the principles of radiation biology and protection as they pertain to the interaction of radiation with living systems.
K. Course Prerequisites:	RADT A171
L. Course Co-requisites:	N/A
M. Other Restrictions:	N/A
N. Registration Restrictions:	Departmental Approval
O. Course Fees:	No

III. Instructional Goals and Student Learning Outcomes

A. Instructional Goals.

The instructor will:

1. Discuss information supporting the risk vs. benefit concept of using ionizing radiation for medical purposes.
2. Explain ethical practices of radiation protection in clinical practice.
3. Present up to date information related to radiation biology and radiation protection as it pertains to the interaction of radiation with living systems.

B. Student Learning Outcomes and Assessment Measures

Student Learning Outcomes:	Assessment Measures
Upon completion of this course, the student will be able to:	This outcome will be assessed by one or more of the following:
1. Discuss the risk vs. benefit concept of medial uses of ionizing radiation	Assignments and examinations
2. Identify legal and ethical radiation protection responsibilities of radiation workers	Assignments and examinations
3. List the objectives of a radiation protection program	Assignments and examinations
4. Describe the as low as reasonably achievable (ALARA) concept	Assignments and examinations
5. Identify the functions of federal and state regulatory agencies for the control of radiation	Assignments and examinations
6. Describe the operation of radiation detection and measurement devices	Assignments and examinations

7. Identify dose limits for all occupational workers to include embryo and fetus limits in occupationally exposed women	Assignments and examinations
8. Identify radiation protection standards for radiographic and fluoroscopic equipment	Assignments and examinations
9. Analyze radiation induced somatic and genetic damage	Assignments and examinations
10. Evaluate factors influencing radiobiological events at the cellular and subcellular level	Assignments and examinations

IV. Course Level Justification

Expands upon principles provided in RADT A171 regarding types of radiation, radiation protection and radiobiology.

V. Topical Course Outline

A. Introduction to Radiation Biology and Protection
   a. Justification
   b. Biologic Damage Potential
   c. Objectives of a Radiation Protection Program
   d. Legal and Ethical Responsibilities

B. Sources of radiation
   a. Natural
   b. Man-made (artificial)

C. Radiation Quantities and Units
   a. Radiation Quantities
      i. Exposure
      ii. Absorbed Dose
      iii. Equivalent Dose
      iv. Effective Dose
      v. Radioactivity
   b. Radiation Units
      i. Roentgen and Coulomb/kilogram
      ii. Rad and Gray
      iii. Rem and Sievert
      iv. Curie and Becquerel

D. Radiation Protection Standards Research and Regulatory Agencies
   a. Radiation Protection Standards Organizations
      i. International Council on Radiation Protection and Measurements
      ii. National Council on Radiation Protection and Measurements (NCRP)
      iii. United Nations Scientific Committee on the Effects of Atomic Radiation
      iv. National Academy of Sciences/National Research Council Committee on the Biological Effects of Ionizing Radiation
   b. U.S. Regulatory Agencies
      i. Nuclear Regulatory Commission (NRC)
      ii. Agreement States
      iii. Environmental Protection Agency
      iv. U.S. Food and Drug Administration
      v. Occupational Safety and Health Administration

c. Radiation Safety Committee
d. Radiation Safety Officer

E. Monitoring
    a. Area Survey
    b. General Survey Procedures
        i. Qualified Expert
        ii. Equipment
        iii. Ion Chambers
        iv. Proportional Counters
    c. Personnel Monitoring
        i. Historical Perspective
        ii. Evolution of Standards
        iii. Methods and Types of Personnel Monitors
            1. Film Badge
            2. Thermoluminescent Dosimeter
            3. Optically Stimulated Luminescent Dosimeter
        iv. Effective Dose Limiting System
            1. Define
            2. Limits – NCRP Report # 116

F. Radiation Protection
    a. Occupational Worker Protection
        i. ALARA
        ii. Three Cardinal Rules
        iii. Radiographic Equipment Standards
        iv. Fluoroscopy Equipment Standards
    b. Patient protection
        i. ALARA
        ii. Three Cardinal Rules
        iii. Radiographic Equipment Standards
        iv. Fluoroscopy Equipment Standards
    c. Design
        i. Primary Barriers
        ii. Secondary Barriers
        iii. Half Value Layer
        iv. Lead or Aluminum Equivalency

G. Radiobiology
    a. Somatic vs. Genetic Effects
    b. Damage Factors
    c. Radiation Dose- Response Relationship
        i. Dose Response Curves
        ii. Threshold vs. Nonthreshold
        iii. Linear vs. Nonlinear
    d. Early Effects vs. Late Effects
    e. Stochastic vs. Non-Stochastic Effects
    f. Radiation Energy Transfer Determinants
        i. Linear Energy Transfer
        ii. Relative Biological Effectiveness
        iii. Oxygen Enhancement

iv. Radiosensitivity

g. Molecular Radiobiology
    i. Direct Interaction
    ii. Indirect Interaction
        1. Radiolysis
        2. Free Radicals
    iii. Target Theory

h. Early Cellular and Systemic Somatic Effects
    i. Total Body Irradiation
        1. Acute Radiation Syndrome
        2. Mean Survival Time
        3. Lethal Dose
    ii. Partial Body Irradiation
        1. Protraction and Fractionation
        2. Hemopoietic System
        3. Skin
        4. Reproductive
        5. Other

i. Late Cellular and Systemic Somatic Effects
    i. Historical Perspective
        1. Hiroshima and Nagasaki
        2. Marshall Island Atomic Testing
        3. American Southwest Atomic Testing
        4. Chernobyl
        5. Radium Watch Dial Painters
        6. Uranium Miners
        7. Others
    ii. Risk Estimates
    iii. Radiation Induced Cataracts
    iv. Radiation Induced Malignancies

VI. Suggested Texts

Bontrager, K. L. (2014). *Textbook of radiographic positioning and related anatomy* (8th ed.). St. Louis, MO: Mosby.

Bushong, S. C. (2013). *Radiologic science for technologists: Physics, biology, and protection* (10th ed.). St. Louis, MO: Mosby.

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Johnston, J., & Fauber, T. (2012). *Essentials of radiographic physics and imaging.* St. Louis, MO: Mosby.

Shere-Statkiewicz, M., Visconti, P., & Ritenour, E. (2011). *Radiation protection in medical radiography* (6th ed.). Maryland Heights, MD: Mosby.

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

1a. School or College	1b. Division	1c. Department
CH College of Health	AHLS Division of Health Safety	Medical Imaging

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
RADT	A295A	N/A	5	(0+24)

6. Complete Course Title
Radiography Practicum IV

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other Course Content (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions
- ☐ General Education Requirement

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☐ A-F ☒ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2015 To: Fall/9999

12. ☐ Cross Listed with N/A
☐ Stacked with N/A
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Radiologic Technology RADT	April 3, 2015	Robert McClung
2.		
3.		

Initiator Name (typed): Kathryn M Slagle Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: April 3, 2015
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: April 3, 2015

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Provides opportunities for direct and indirect supervised development of radiographic skills in a health care facility, including patient interaction in the performance of select radiographic examinations. Continues the development of previously learned clinical skills.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
RADT A195C

16b. Co-requisite(s) *(concurrent enrollment required)*
N/A

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*
Departmental Approval

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Course content has been modified to reflect national association curriculum update.

Initiator (faculty only) Date
Kathryn M Slagle
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chair Date

☐ Approved
☐ Disapproved
College/School Curriculum Committee Chair Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chair Date

☐ Approved
☐ Disapproved
Provost or Designee Date

University of Alaska Anchorage
College of Health
Course Content Guide

I. Date of Initiation: Spring 2015

II. Curriculum Action Request

A. College:	College of Health
B. Course Prefix:	RADT
C. Course Number:	A295A
D. Number of Credits:	5
E. Contact Hours:	0+24 Total Lecture Hours = 0 Hours Total Clinical Hours = Approximately 340 Hours Outside of Clinic = 24 Hours
F. Course Title:	Radiography Practicum IV
G. Grading Basis:	Pass / No Pass
H. Implementation Date:	Fall 2015
I. Cross-listed/Stacked:	N/A
J. Course Description:	Provides opportunities for direct and indirect supervised development of radiographic skills in a health care facility, including patient interaction in the performance of select radiographic examinations. Continues the development of previously learned clinical skills.
K. Course Prerequisites:	RADT A195C
L. Course Co-requisites:	N/A
M. Other Restrictions:	N/A
N. Registration Restrictions:	Departmental Approval
O. Course Fees:	Yes

III. Instructional Goals and Student Learning Outcomes

A. Instructional Goals.

The instructor will:

1. Provide continued direct and indirect supervised application of radiographic skills.
2. Provide clinical opportunities for the student to continue their development of career entry skills described by nationally recognized standards in Radiologic Technology.

B. Student Learning Outcomes and Assessment Measures

Student Learning Outcomes:	Assessment Measures
Upon completion of this course, the student will be able to:	This outcome will be assessed by one or more of the following:
1. Demonstrate accurate positioning, equipment operation and technique selection for radiologic examinations	Clinical Evaluation Clinical Competency
2. Demonstrate competencies on required radiologic examinations	Clinical Evaluation Clinical Competency
3. Exhibit professional conduct and judgment	Clinical Evaluation Clinical Competency

4. Practice critical thinking skills	Clinical Evaluation Clinical Competency
5. Adhere to policies of the program and clinical site	Clinical Evaluation Clinical Competency
6. Demonstrate compliance with radiation protection procedures	Clinical Evaluation Clinical Competency

IV. Course Level Justification

This course is designed to continue the development of concepts and principles associated with radiographic fundamentals in the production, evaluation, and improvement of radiographic images. This course builds upon foundational information from RADT A195C.

V. Topical Course Outline

A. Clinical Application
   1. Positioning, Equipment Operation and Technique Selection
      a. Routine Exams
      b. Fluoroscopy Exams
      c. Trauma Exams
      d. Mobile Exams
      e. Pediatric Exams
      f. Surgical Exams
      g. Others

   2. Professional Behavior
      a. Interpersonal Skills
      b. Judgment and Critical Thinking
      c. Confidentiality
      d. Documentation
      e. Quality Patient Care
      f. Others

B. Competencies
   1. Maintenance of Previously Earned Competencies
   2. Continued Completion of American Registry of Radiologic Technologist Competencies

C. Policies and Procedures
   1. Compliance with Program and Clinical Site Policies
   2. Compliance with Infection Control Standards and Procedures
   3. Compliance with Radiation Protection Standards and Procedures

VI. Suggested Texts

Bontrager, K. L. (2014). *Textbook of radiographic positioning and related anatomy* (8th ed.). St. Louis, MO: Mosby.

Bushong, S. C. (2013). *Radiologic science for technologists: Physics, biology, and protection* (10th ed.). St. Louis. MO: Mosby.

Martensen, K. (2011). *Radiographic image analysis* (3rd ed.). St. Louis, MO: Mosby.

VII. Bibliography

Carlton, R., & Adler, A. (2013). *Principles of radiographic image: An art and a science* (5th ed.). Clifton Park, NY: Delmar.

Ehrlich, R., & Coakes, D. (2013). *Patient care in radiography: With an introduction to medical imaging* (8th ed.). St. Louis, MO: Elsevier.

Graham, D., Cloke, P., & Vosper, M. (2012). *Principles of applications of radiological physics* (6th ed.). St. Louis, MO: Mosby.

Johnston, J., & Fauber, T. (2012). *Essentials of radiographic physics and imaging.* St. Louis, MO: Mosby.

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

1a. School or College	1b. Division	1c. Department
CH College of Health	AHLS Division of Health Safety	Medical Imaging

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
RADT	A295B	N/A	5	(0+24)

6. Complete Course Title
Radiography Practicum V

Abbreviated Title for Transcript (30 character)

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

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☐ Course Description
- ☐ Test Score Prerequisites
- ☐ Automatic Restrictions
  - ☐ Class ☐ Level ☐ College ☐ Major
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions
- ☐ General Education Requirement
- ☒ Other Course Content (please specify)

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☐ A-F ☒ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2015 To: Fall/9999

12. ☐ Cross Listed with N/A
☐ Stacked with N/A
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Radiologic Technology RADT	April 3, 2015	Robert McClung
2.		
3.		

Initiator Name (typed): Kathryn M Slagle Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: April 3, 2015
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: April 3, 2015

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Provides continued opportunities for direct and indirect supervised development of radiographic skills in a health care facility, including patient interaction in the performance of select radiographic examinations. Continues the development of previous learned clinical skills. Concludes the development of career entry skills for the Radiologic Technologist.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
RADT A295A

16b. Co-requisite(s) *(concurrent enrollment required)*
N/A

16c. Automatic Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*
Departmental Approval

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Course content has been modified to reflect national association curriculum update.

Initiator (faculty only) Date
Kathryn M Slagle
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chair Date

☐ Approved
☐ Disapproved
College/School Curriculum Committee Chair Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chair Date

☐ Approved
☐ Disapproved
Provost or Designee Date

University of Alaska Anchorage
College of Health
Course Content Guide

I. Date of Initiation: Spring 2015

II. Curriculum Action Request

A. College:	College of Health
B. Course Prefix:	RADT
C. Course Number:	A295B
D. Number of Credits:	5
E. Contact Hours:	0+24 Total Lecture Hours = 0 Hours Total Clinical Hours = Approximately 340 Hours Outside of Clinic = 24 Hours
F. Course Title:	Radiography Practicum V
G. Grading Basis:	Pass / No Pass
H. Implementation Date:	Fall 2015
I. Cross-listed/Stacked:	N/A
J. Course Description:	Provides continued opportunities for direct and indirect supervised development of radiographic skills in a health care facility, including patient interaction in the performance of select radiographic examinations. Continues the development of previous learned clinical skills. Concludes the development of career entry skills for the Radiologic Technologist.
K. Course Prerequisites:	RADT A295A
L. Course Co-requisites:	N/A
M. Other Restrictions:	N/A
N. Registration Restrictions:	Departmental Approval
O. Course Fees:	Yes

III. Instructional Goals and Student Learning Outcomes

A. Instructional Goals.

The instructor will:

1. Provide continued direct and indirect supervised application of radiographic skills.
2. Provide clinical opportunities for the student to continue their development of career entry skills described by nationally recognized standards in Radiologic Technology.

B. Student Learning Outcomes and Assessment Measures

Student Learning Outcomes:	Assessment Measures
Upon completion of this course, the student will be able to:	This outcome will be assessed by one or more of the following:
1. Demonstrate accurate positioning, equipment operation and technique selection for radiologic examinations	Clinical Evaluation Clinical Competency
2. Demonstrate competencies on required radiologic examinations	Clinical Evaluation Clinical Competency

3. Exhibit professional conduct and judgment	Clinical Evaluation Clinical Competency
4. Practice critical thinking skills	Clinical Evaluation Clinical Competency
5. Adhere to policies of the program and clinical site	Clinical Evaluation Clinical Competency
6. Demonstrate compliance with radiation protection procedures	Clinical Evaluation Clinical Competency

V. Course Level Justification

This course is designed to conclude the development of concepts and principles associated with radiographic fundamentals in the production, evaluation, and improvement of radiographic images. This course builds upon foundational information from RADT A295A.

VI. Topical Course Outline

A. Clinical Application
   1. Positioning, Equipment Operation and Technique Selection
      a. Routine Exams
      b. Fluoroscopy Exams
      c. Trauma Exams
      d. Mobile Exams
      e. Pediatric Exams
      f. Surgical Exams

   2. Professional Behavior
      a. Interpersonal Skills
      b. Judgment and Critical Thinking
      c. Confidentiality
      d. Documentation
      e. Quality Patient Care

B. Competencies
   1. Maintenance of Previously Earned Competencies
   2. Complete all Program Required Competencies for Graduation

C. Policies and Procedures
   1. Compliance with Program and Clinical Site Policies
   2. Compliance with Infection Control Standards and Procedures
   3. Compliance with Radiation Protection Standards and Procedures

VI. Suggested Texts

Bontrager, K. L. (2014). *Textbook of radiographic positioning and related anatomy* (8th ed.). St. Louis, MO: Mosby.

Bushong, S. C. (2013). *Radiologic science for technologists: Physics, biology, and protection* (10th ed.). St. Louis. MO: Mosby.

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Medical Imaging Sciences
UNIVERSITY of ALASKA ANCHORAGE

April 16, 2015

RE: Proposed changes to RADT courses

RADT A151

Title Change: Current name does not describe the course accurately. Title needed to be more specific to content.

Course Description and content changes: The American Society of Radiologic Technologists has recently updated recommended radiography curriculum. The program has updated curriculum to be in line with these national standard recommendations.

RADT A161:

Removal of prerequisites: The sequence of courses has changed; therefore, previous prerequisites could no longer be in place.

Content changes: The American Society of Radiologic Technologists has recently updated recommended radiography curriculum. The program has updated curriculum to be in line with these national standard recommendations.

RADT A171:

Course Description and content changes: The American Society of Radiologic Technologists has recently updated recommended radiography curriculum. The program has updated curriculum to be in line with these national standard recommendations.

RADT A251:

Course Description and content changes: The American Society of Radiologic Technologists has recently updated recommended radiography curriculum. The program has updated curriculum to be in line with these national standard recommendations.

RADT A295A:

Content changes: The American Society of Radiologic Technologists has recently updated recommended radiography curriculum. The program has updated curriculum to be in line with these national standard recommendations.

Medical Imaging Sciences
UNIVERSITY of ALASKA ANCHORAGE

RADT A295B:

Content changes: The American Society of Radiologic Technologists has recently updated recommended radiography curriculum. The program has updated curriculum to be in line with these national standard recommendations.

Kathryn M. Slagle, M.S., RT (R)
Term Assistant Professor
Medical Imaging Sciences
School of Allied Health
University of Alaska, Anchorage
907-786-4336

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

1a. School or College	1b. Department
CH College of Health	Medical Imaging

2. Complete Program Title/Prefix
AAS, Radiologic Technology

3. Type of Program

Choose one from the appropriate drop down menu: Undergraduate: Associate of Applied Science or Graduate: CHOOSE ONE

This program is a Gainful Employment Program: ☒ Yes or ☐ No

4. Type of Action:

PROGRAM	PREFIX
☐ Add	☐ Add
☒ Change	☐ Change
☐ Delete	☐ Inactivate

5. Implementation Date (semester/year)
From: Fall/2015 To: Fall/9999

6a. Coordination with Affected Units Department, School, or College: School of Allied Health

Initiator Name (typed): Kathryn M Slagle Initiator Signed Initials: _____
Date:_____

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: April 3, 2015

6c. Coordination with Library Liaison Date: April 3, 2015

7. Title and Program Description - Please attach the following:

☒ Cover Memo ☒ Catalog Copy in Word using the track changes function. *
*Copy the text directly from the program website of the online catalog and paste into a Word document.

8. Justification for Action
Change of title for RADT A151 to Radiographic Physics to be more specific to actual content of course.

Initiator (faculty only) Date Kathryn M Slagle Initiator (TYPE NAME)	☐ Approved ☐ Disapproved Dean/Director of School/College Date
☐ Approved ☐ Disapproved Department Chair Date	☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chair Date
☐ Approved ☐ Disapproved College/School Curriculum Committee Chair Date	☐ Approved ☐ Disapproved Provost or Designee Date

Associate of Applied Science in Radiologic Technology

Overview

Learning Outcomes

The Radiologic Technology program prepares students for employment as career-entry medical radiographers. Students completing the program receive an Associate of Applied Science and are eligible to apply for certification with the American Registry of Radiologic Technologists (ARRT).

Graduates are prepared with the technical skills necessary to perform a variety of diagnostic radiographic examinations. The primary role of the radiographer is to provide diagnostic images of the structure and function of anatomy to assist the physician in the treatment of injury and disease. Examples of examinations performed include chest, upper and lower extremities, spine, ribs, skull, gastrointestinal, genitourinary, and reproductive systems.

The program of study incorporates didactic instruction, laboratory demonstration and clinical application in a manner that connects theory with practice. The inclusion of General University Requirements fulfills program goals of developing knowledgeable and competent practitioners who will have opportunities for continued professional growth. Additional expenses include clinical attire, vaccinations, identification badge and other organization fees.

The AAS degree is not contingent upon the students passing any type of external certification or licensure examination.

Admissions Requirements

Satisfy the Application and Admission Requirements for Associate Degree Programs.

Students will be admitted to the Radiologic Technology program as a pre-major. Prior to being admitted as a full major the student must complete the following additional admission requirements:

Submit Medical Imaging Sciences Department, Radiologic Technology application.

Earn a grade of C or better in BIOL A111, BIOL A112 and MA A101.

Current CPR (American Heart Association BLS) certification.

Evidence of current immunization to include the following:

Rubella and rubeola, confirmed by titer;

Immunity to hepatitis A and hepatitis B, confirmed by titer;

Immunity to chicken pox documented by history, titer, or current immunization;

Diphtheria/tetanus vaccination within the past 10 years (with booster required at the time of expiration);

Freedom from active tuberculosis, documented annually by negative PPD skin test or by health examination;

Documentation of HIV testing annually (results not required).

Provide criminal background check upon acceptance.

Advising

Students should contact the Radiologic Technology faculty for assistance with course planning toward the degree.

Graduation Requirements

Satisfy the General University Requirements for Associate of Applied Science Degrees.

Complete the General Course Requirements for Associate of Applied Science Degrees (ENGL A212 recommended).

Complete the Program Requirements below.

Program Requirements

MATH A105 Intermediate Algebra * 3-4

or MATH A107 College Algebra

Select one of the following: 3

HUMS/PSY A153

Human Relations

PSY A111

General Psychology

PSY A150

Lifespan Development

SOC A101

Introduction to Sociology

Professional Course Requirements

RADT A111 Introduction to Radiologic Technology and Patient Care 3

RADT A131 Radiographic Procedures I 3

RADT A132 Radiographic Procedures II 3

RADT A133 Radiographic Procedures III 3

RADT A151 Radiographic Physics 2

RADT A161 Fundamentals of Medical Imaging 3

RADT A171 Fundamentals of Medical Imaging II 3

RADT A195A	Radiography Practicum I	2
RADT A195B	Radiography Practicum II	3
RADT A195C	Radiography Practicum III	3
RADT A211	Radiologic Pharmacology and Drug Administration	1
RADT A251	Radiobiology and Protection	2
RADT A272	Quality Control in Medical Imaging	2
RADT A280	Medical Imaging Pathology	3
RADT A282	Current Issues in Radiologic Technology	1
RADT A295A	Radiography Practicum IV	5
RADT A295B	Radiography Practicum V	5

*

Or any MATH course for which MATH A105 or MATH A107 is a prerequisite.

A total of 62 credits is required for the degree.

- See more at: http://catalog.uaa.alaska.edu/undergraduateprograms/coh/radiologictechnology/aas-radiologictechnology/#sthash.beAONbwY.dpuf

Associate of Applied Science in Radiologic Technology

Overview

Learning Outcomes

The Radiologic Technology program prepares students for employment as career-entry medical radiographers. Students completing the program receive an Associate of Applied Science and are eligible to apply for certification with the American Registry of Radiologic Technologists (ARRT).

Graduates are prepared with the technical skills necessary to perform a variety of diagnostic radiographic examinations. The primary role of the radiographer is to provide diagnostic images of the structure and function of anatomy to assist the physician in the treatment of injury and disease. Examples of examinations performed include chest, upper and lower extremities, spine, ribs, skull, gastrointestinal, genitourinary, and reproductive systems.

The program of study incorporates didactic instruction, laboratory demonstration and clinical application in a manner that connects ~~that provides correlation of~~ theory with practice. The inclusion of General University Requirements fulfills program goals of developing knowledgeable and competent practitioners who will have opportunities for continued professional growth. Additional expenses include clinical attire, vaccinations, identification badge and other organization fees.

The AAS degree is not contingent upon the students passing any type of external certification or licensure examination.

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Satisfy the Application and Admission Requirements for Associate Degree Programs.

Students will be admitted to the Radiologic Technology program as a pre-major. Prior to being admitted as a full major the student must complete the following additional admission requirements:

Submit Medical Imaging Sciences Department, Radiologic Technology application.

Earn a grade of C or better in BIOL A111, BIOL A112 and MA A101.

Current CPR (American Heart Association BLS) certification.

Evidence of current immunization to include the following:

Rubella and rubeola, confirmed by titer;

Immunity to hepatitis A and hepatitis B, confirmed by titer;

Immunity to chicken pox documented by history, titer, or current immunization;

Diphtheria/tetanus vaccination within the past 10 years (with booster required at the time of expiration);

Freedom from active tuberculosis, documented annually by negative PPD skin test or by health examination;

Documentation of HIV testing annually (results not required).

Provide criminal background check upon acceptance.

Advising

Students should contact the Radiologic Technology faculty for assistance with course planning toward the degree.

Graduation Requirements

Satisfy the General University Requirements for Associate of Applied Science Degrees.

Complete the General Course Requirements for Associate of Applied Science Degrees (ENGL A212 recommended).

Complete the Program Requirements below.

Program Requirements

MATH A105	Intermediate Algebra *	3-4
or MATH A107	College Algebra	
Select one of the following:		3
HUMS/PSY A153		
Human Relations		
PSY A111		
General Psychology		
PSY A150		
Lifespan Development		
SOC A101		
Introduction to Sociology		

Professional Course Requirements

RADT A111	Introduction to Radiologic Technology and Patient Care	3
RADT A131	Radiographic Procedures I	3
RADT A132	Radiographic Procedures II	3
RADT A133	Radiographic Procedures III	3
RADT A151	~~Medical Imaging Physics~~Radiographic Physics	2
RADT A161	Fundamentals of Medical Imaging	3
RADT A171	Fundamentals of Medical Imaging II	3

RADT A195A	Radiography Practicum I	2
RADT A195B	Radiography Practicum II	3
RADT A195C	Radiography Practicum III	3
RADT A211	Radiologic Pharmacology and Drug Administration	1
RADT A251	Radiobiology and Protection	2
RADT A272	Quality Control in Medical Imaging	2
RADT A280	Medical Imaging Pathology	3
RADT A282	Current Issues in Radiologic Technology	1
RADT A295A	Radiography Practicum IV	5
RADT A295B	Radiography Practicum V	5

*

Or any MATH course for which MATH A105 or MATH A107 is a prerequisite.

A total of 62 credits is required for the degree.

- See more at: http://catalog.uaa.alaska.edu/undergraduateprograms/coh/radiologictechnology/aas-radiologictechnology/#sthash.beAONbwY.dpuf

MEMO

To: Lora Volden, University Registrar

CC: UAA Governance Office & UAB

Re: Prerequsites for PRPE 108

Date: April 20, 2015

To facilitate multiple measures in course placement, “Course Prerequisites” on the PRPE A108 CAR should be revised slightly to read “Appropriate score on placement test, departmental approval, or a C or better in PRPE A086.”

If you have any questions, please feel free to contact me.

Shannon Gramse
Associate Professor and Chair,
CPDS English

Division of
Transportation and Power
UNIVERSITY of ALASKA ANCHORAGE

3211 Providence Drive, ADT 207
Anchorage, Alaska 99508-4614
T 907.786.1485 • F 907.786.4637
www.uaa.alaska.edu/ctc/programs/transportation

RECEIVED
MAY 22 2015
CTC DEAN'S OFFICE

Date: May 14, 2015

To: Dr. Francisco Miranda, Chair
UAA Undergraduate Academic Board

Through Bonnie Nygard, Interim Dean
Community & Technical College

Through: Cathy LeCompte, Associate Dean of Academic Affairs
Community & Technical College

From : Kelly Smith, Director
Transportation & Power Division

Re: WELD 190: Selected Topics in Welding Technology

The Welding and Nondestructive Testing Technology faculty recommend that the coding for WELD 190: Selected Topics in Welding Technology be changed from non-repeatable to repeatable with a change in subtitle.

Allowing repeatable status for this course facilitates flexibility of UAA, extended sites in responding to particular needs of local students and communities.

C; Lora Volden
Lorraine Stewart

Department of
Teaching and Learning
UNIVERSITY of ALASKA ANCHORAGE

3211 Providence Drive, PSB 225
Anchorage, Alaska 99508-4614
T 907.786.4481 • F 907.786.4473
www.uaa.alaska.edu/coe

April 28, 2015

To: Lora Volden, UAA Registrar

Re: Updates to Early Childhood Associates Program Catalog

Dear Ms. Volden,

The Early Childhood Associates Program catalog currently states that students must have a C in all coursework leading up to the final practicum, but doesn't stipulate they must also receive at least a C in that last course.

Our Associates program just completed review by the UAB, including our revised catalog copy. However, Early Childhood faculty would like an additional policy statement placed in the new catalog.

We need to include: "Associates program students must receive at least a C in ***all*** major requirements in order to graduate from the program."

I spoke to Dr. Francisco Miranda, Chair of the UAB, and he suggested I write a memo to you for permission for this exception at this stage in the review process.

Thank you for considering our request.

Warm regards,

Karen Roth

Early Childhood Program Chair
College of Education
UAA

Dr. Paul Deputy, Dean

College of Education
UAA

Karen L Roth

From: Francisco Miranda
Sent: Monday, April 27, 2015 9:24 AM
To: Karen L Roth
Cc: Wei Hsiao; Kathryn Ohle; Aaron L Hotch
Subject: RE: Early Childhood Associates Program catalog changes

Dear Karen--
I have been having some issues with e-mail and it seems that I missed your message. I am so sorry.

You can write a brief memo describing the issue and the way you'd like to fix it; address it to the Registrar thru UAB, and have it signed by your department chair and your college dean and then send it to Governance. UAB will put it in its agenda for its next meeting, which will take place in mid August.

Regards,

Francisco Miranda

From: Karen L Roth
Sent: Wednesday, April 22, 2015 2:57 PM
To: Francisco Miranda
Cc: Wei Hsiao; Kathryn Ohle; Aaron L Hotch
Subject: Early Childhood Associates Program catalog changes

Hello Dr. Miranda,

We had a situation arise this week with a student who received a D in a final practicum in our Associates program and wants to graduate.

Our Associates program catalog states that students must have a C in all coursework leading up to the final practicum, but doesn't stipulate they must also receive at least a C in that last course.

This semester we have no basis to require the student to take the practicum again, but would like our new catalog to reflect that wording.

Is it too late to add the wording, "Associates students *must* receive at least a C in all major requirements to graduate from the program" to the Associates catalog?

I spoke to the Registrar's office and they suggested I ask you.

Thank you so much!
Karen

Karen Roth
Early Childhood Program Chair
College of Education
786.1928