Graduate Academic Board

Agenda

September 26, 2014
ADM 204
9:30 to 11:30

I. Roll Call

				Ex-Officio Members
() Arlene Schmuland	() Anthony Paris	() Peter Olsson	() Hsing-Wen Hu	() David Yesner
() Cindy Knall	() Dennis Drinka	() Clayton Trotter	() Sam Thiru	() Lora Volden
() Jervette Ward	() FS at Large	() FS at Large	() FS at Large	() Scheduling and Publications
() FS CAS				

II. Approval of Agenda (pg. 1-2)

III. Approval of Meeting Summary (pg. 3-4)

IV. Administrative Reports

A. Associate Dean of the Graduate School David Yesner (pg. 5)

B. Graduate Student

C. University Registrar Lora Volden

D. GAB Chair Arlene Schmuland

V. Program/Course Action Request - First Readings

Add	STAT A602	Advanced Scientific Sampling (stacked with STAT A402)(3 cr)(3+0)(pg. 6-12)
Add	STAT A603	Advanced Regression Analysis (stacked with STAT A403)(3 cr)(3+0)(pg. 13-18)
Add	STAT A604	Advanced Analysis of Variance (stacked with STAT A404)(3 cr)(3+0)(pg. 19-24)
Add	STAT A607	Advanced Time Series Analysis (stacked with STAT A407)(3 cr)(3+0)(pg. 25-32)
Add	STAT A608	Advanced Multivariate Statistics (stacked with STAT A408)(3 cr)(3+0)(pg. 33-40)
Chg		Master of Arts, Anthropology (pg. 41-49)
Chg	ANTH A615	Advanced Applied Anthropology (stacked with ANTH A415) (3 cr)(3+0)(pg. 50-59)
Add	ANTH A654	Advanced Culture and Ecology (stacked with ANTH A454)(3 cr)(3+0)(pg. 60-76)
Add	ANTH A664	Advanced Culture and Globalization (stacked with ANTH A464) (3 cr)(3+0)(pg. 77-93)
Dlt	ANTH A683	Zooarchaeology (stacked with ANTH A483)(4 cr)(3+2)(pg. 94-95)
Dlt	ANTH A685	Advanced Human Osteology (stacked with ANTH A485)(4 cr)(3+2)(pg. 96-97)
Dlt	ANTH A686	Advanced Applied Human Osteology (stacked with ANTH A486) (3 cr)(3+0)(pg. 98-99)
Chg		Master of Science, Arctic Engineering (pg. 100-105)
Add		Prefix, Arctic Engineering (pg. 106-107)
Chg	AE A603	Arctic Engineering (stacked with AE A403)(3 cr)(3+0)(pg. 108-115)
Chg	AE A681	Frozen Ground Engineering (3 cr)(3+0)(pg. 116-119)
Chg	AE A682	Ice Engineering (3 cr)(3+0)(pg. 120-123)

Chg	AE A683	Arctic Hydrology and Hydraulic Engineering (3 cr)(3+0)(pg. 124-127)
Chg	AE A684	Arctic Utility Distribution (3 cr)(3+0)(pg. 128-131)
Chg	AE A685	Arctic Mass and Heat Transfer (3 cr)(3+0)(pg. 132-135)
Add	AE A686	Arctic Engineering Project (3 cr)(0+9)(pg. 136-139)
Chg	AE A689	Cold Regions Pavement Design (3 cr)(3+0)(pg. 140-143)

VI. Old Business

VII. New Business

A. Review of Graduate Academic Board Draft Goals (pg. 144)

VIII. Informational Items and Adjournment

Graduate Academic Board

Summary

September 12, 2014
ADM 204
9:30 to 11:30

I. Roll Call

(x) Arlene Schmuland	(x) Anthony Paris	(x) Peter Olsson	(e) Hsing-Wen Hu	**Ex-Officio Members**
(x) Cindy Knall	(x) Dennis Drinka	() Clayton Trotter	(x) Sam Thiru	() David Yesner
(x) Jervette Ward	() FS at Large	() FS at Large	() FS at Large	(x) Lora Volden
() FS CAS				(x) Scheduling and Publications

II. Approval of Agenda (pg. 1-2)

Approved

III. Approval of Meeting Summary (pg. 3)

Approved

IV. Administrative Reports

A. GAB Chair- Arlene Schmuland
Goals will be brought forward for review and approval at the September 26th meeting; they are due to Faculty Senate in October.
Concerns have been raised about Academic Boards' behavior with initiators. Over the next weeks we'll review what we might do to alleviate these concerns. Discussion followed.

B. Associate Dean of the Graduate School David Yesner; Graduate Council Report

C. Graduate Student
GSA is hosting their first social event next Wednesday in the Library from 4:00 to 7:00
Holding elections this month and will hopefully have a GSA member willing to serve on GAB by October
A survey will go out to graduate students to determine what their preferences are

D. University Registrar Lora Volden
Discussed federal regulations related to Title IX funding and the large amount of stacked courses that have come forward in the past few years. Students will not be able to receive both an undergraduate degree and a graduate degree in the same discipline as the stacked course can only count towards one.

V. Program/Course Action Request - First Readings

Chg		Master of Science, Nursing Science (pg. 4-22)
Chg		Graduate Certificate, Nursing (pg. 23-40)

Waive for first reading, approve for second

Dlt	BIOL A651	Advanced Applied Microbiology (3 cr)(3+0)(pg. 41)
Chg	BIOL A663	Advanced Molecular Biology of Cancer (3 cr)(3+0)(pg. 42-45)
Chg	BIOL A665	Experiential Learning: Advanced Molecular Biology (stacked with BIOL A465) (4 cr)(2+4)(pg. 46-55)
Add	BIOL A678	Advanced Biological Oceanography (stacked with BIOL A478)(4 cr)(4+0)(pg. 56-61)

Waive for first reading, approve for second

Chg	STAT A601	Advanced Statistical Methods (stacked with STAT A401)(3 cr)(3+0)(pg. 62-69)

Waive for first reading, approve for second

Add	STAT A602	Advanced Scientific Sampling (stacked with STAT A402)(3 cr)(3+0)(pg. 70-76)
Add	STAT A603	Advanced Regression Analysis (stacked with STATA403)(3 cr)(3+0)(pg. 77-82)
Add	STAT A604	Advanced Analysis of Variance (stacked with STAT A404)(3 cr)(3+0)(pg. 83-88)
Add	STAT A607	Advanced Time Series Analysis (stacked with STAT A407)(3 cr)(3+0)(pg. 89-96)
Add	STAT A608	Advanced Multivariate Statistics (stacked with STAT A408)(3 cr)(3+0)(pg. 97-104)

Chg		Master of Arts, Anthropology (pg. 105-113)
Chg	ANTH A615	Advanced Applied Anthropology (stacked with ANTH A415) (3 cr)(3+0)(pg. 114-122)
Add	ANTH A654	Advanced Culture and Ecology (stacked with ANTH A454)(3 cr)(3+0)(pg. 123-141)
Add	ANTH A665	Advanced Culture and Globalization (stacked with ANTH A465) (3 cr)(3+0)(pg. 142-159)
Dlt	ANTH A683	Zooarchaeology (stacked with ANTH A483)(4 cr)(3+2)(pg. 160-161)
Dlt	ANTH A685	Advanced Human Osteology (stacked with ANTH A485)(4 cr)(3+2)(pg. 162-163)
Dlt	ANTH A686	Advanced Applied Human Osteology (stacked with ANTH A486) (3 cr)(3+0)(pg. 164-165)

VI. Old Business

VII. New Business

A. Credit Hour Review Process (pg. 166-171)

B. Notification Process for Non-curricular Matters

VIII. Informational Items and Adjournment

Graduate School
UNIVERSITY of ALASKA ANCHORAGE

3211 Providence Drive, DPL 101
Anchorage, Alaska 99508-4614
(907) 786-1096
gradschool@uaa.alaska.edu
www.alaska.edu/graduateschool

Associate Dean's report to the Graduate Academic Board (09/26/14):

- Graduate School Dean position closes today (9/26)
- DNP (Doctor of Nursing Practice) degree approved by SAC for December BOR agenda
- MS CECS (Master of Science in Computer Science and Computer Engineering) degree revision completed, will be submitted for October SAC meeting
- SLP (Speech/Language Pathology) Post-baccalaureate Certificate passed by BOR
- Graduate Faculty concept to be revisited by Graduate Council today (9/26), delayed from last week
- New workflow processes to be considered by Graduate Council
- Graduate Student Welcome Resource Fair event a great success, led by new Graduate Student Association leadership
- Potential discussion: three-faceted evolution of Interdisciplinary Study programs under Graduate School leadership

David R. Yesner

David R. Yesner
Associate Dean
ADM 221
(907) 786-1098
dryesner@uaa.alaska.edu

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	Mathematics and Statistics

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
STAT	A602	n/a	3.0	(3+0)

6. Complete Course Title
Advanced Scientific Sampling

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 n/a Max Credits n/a

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2015 To: 99/9999

12. ☐ Cross Listed with _____ Cross-Listed Coordination

☒ Stacked with STAT A402 _____ 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. MS in AEST/STAT A402, A403, A404, A405, A407, A408, A601	03/19/2014	John Olofsson
2. MS in Civil Engineering	03/19/2014	Osama Abaza
3.		

Initiator Name (typed): Kanapathi Thiru Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 03/11/2014
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 03/18/2014

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)*
Sampling methods including simple random, stratified, systematic, and cluster sampling. Special emphasis on estimation procedures including ratio and regression methods, and topics selected from allocations, direct sampling, inverse sampling, randomized response sampling, computer simulation of random variables, bootstrap, jackknife, and cross validation. Students will be required to complete a major survey project and write a report on the findings. Special note: Not available for credit to students who have completed STAT A402.

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)*
Graduate standing

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Support MS in AEST, MS in CE, and interdisciplinary graduate degrees.

Initiator (faculty only) Date

Rieken Venema
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
College of Arts and Sciences
Mathematics & Statistics Department

I. **Initiation Date:** Spring 2014

II. **Course Information**

A. **College**: College of Arts and Sciences
B. **Course Subject/Number**: STAT A602
C. **Credits**: 3
D. **Contact Hours**: 3+0
E. **Course Title**: Advanced Scientific Sampling
F. **Repeat Status**: No
G. **Grading Basis**: A-F
H. **Course Description**: Sampling methods including simple random, stratified, systematic, and cluster sampling. Special emphasis on estimation procedures including ratio and regression methods, and topics selected from: allocations, direct sampling, inverse sampling, randomized response sampling, computer simulation of random variables, bootstrap, jackknife, and cross validation. Students will be required to complete a major survey project and write a report on the findings. Special note: Not available for credit to students who have completed STAT A402.
I. **Course Prerequisites**: n/a
J. **Fees**: Yes
K. **Stacked**: Yes: STAT A402
L. **Registration Restrictions**: Graduate standing

III. **Course Level Justification**

Students enrolled in this course will be expected to complete additional work at a higher level than those students enrolled in STAT A402, and complete a major research project.

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

A.	**Instructional Goals.** The instructor will:
1.	Explain survey methodology, execution, and analysis.
2.	Describe a wide variety of sampling methods, estimation procedures, and sample size calculations.
3.	Explain Monte Carlo simulation of random variables, estimation of standard error and bias using bootstrapping and other re-sampling methods.
4.	Guide with literature review in survey methodology and writing research papers

B.	**Student Learning Outcomes:** Students will be able to:	**Assessment Method**
1.	Describe how to design and implement the steps that are required to conduct a sample survey.	Exams

2.	Distinguish between and describe advantages and disadvantages of various sampling methods.	Exams
3.	Compute parameter estimates and standard errors for various sampling schemes.	Exams and Mini Projects
4.	Use appropriate software for complex sampling designs.	Mini Projects
5.	Conduct literature review, establish the goals of a survey, determine the sample, choose interview methodology, create questionnaire, administer the survey, analyze the data, write a report, and make a presentation in a public forum.	Major Project, Research Summary Paper, Presentation

V. Topical Course Outline

1. Elements of Sampling Problem
    a. Introduction
    b. Estimation of population parameters
    c. Selection of sample size
2. Stratified Random Sampling
    a. Introduction
    b. Estimation population parameters
    c. Allocations
    d. Selection of sample size
    e. Stratification after selection of the sample
3. Ratio, Regression, and Difference Estimation
4. Systematic Sampling
    a. Introduction
    b. Estimation of population parameters
    c. Selection of sample size
5. Quota Sampling
6. Cluster Sampling
    a. Introduction
    b. Estimation of population parameters
    c. Selection of sample size
7. Estimation of Wildlife Population Size
    a. Direct sampling
    b. Inverse sampling
8. Randomized Response Sampling
9. Monte Carlo Simulation of Random Variables
10. Bootstrap, Jackknife, and Cross validation

VI. Suggested Texts

Scheaffer R.L., Mendenhall W., Ott R.L. & Gerow K.G. 2012. *Elementary Survey Sampling*, 7th edition. Cengage.

Thompson S.K. 2002. *Sampling*, 2nd edition. John Wiley.

VII **Bibliography**

* Cochran W. 1990. *Sampling Techniques*, 3rd edition. John Wiley.

* Efron B. 1986. *The Jackknife, the Bootstrap and Other Resampling Plans*. Siam.

Ross S. 2002. *Simulation*, 3rd edition. Elsevier.

Tryfos P. 1996. *Sampling Methods for Applied Research*. John Wiley.

* Classic Text

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	Mathematics and Statistics

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
STAT	A402	n/a	3	(3+0)

6. Complete Course Title
Scientific Sampling

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 Guide (please specify)

9. Repeat Status No # of Repeats n/a Max Credits n/a

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Spring/2015 To: 99/9999

12. ☐ Cross Listed with _____
☒ Stacked with STAT A602
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. MS in AEST/STAT A402, A403, A404, A405, A407, A408, A601	03/19/2014	John Olofsson
2. MS in Civil Engineering	03/19/2014	Osama Abaza
3.		

Initiator Name (typed): Kanapathi Thiru Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 03/11/2014
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 03/18/2014

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)*
Sampling methods including simple random, stratified, systematic, and cluster sampling. Special emphasis on estimation procedures including ratio and regression methods, and topics selected from allocations, direct sampling, inverse sampling, randomized response sampling, computer simulation of random variables, bootstrap, jackknife, and cross validation. Special Note: Not available for credit to students who have completed STAT A602.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
(STAT A252 or STAT A253 or STAT A307) with minimum grade of C

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

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

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

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Stack with graduate course to support MS in AEST, MS in CE, and interdisciplinary graduate degrees.

Initiator (faculty only) Date
Rieken Venema
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
College of Arts and Sciences
Mathematics & Statistics Department

I. **Initiation Date:** Spring 2014

II. **Course Information**

A. **College**: College of Arts and Sciences
B. **Course Subject/Number**: STAT A402
C. **Credits**: 3
D. **Contact Hours**: 3+0
E. **Course Title**: Scientific Sampling
F. **Repeat Status**: No
G. **Grading Basis**: A-F
H. **Course Description**: Sampling methods including simple random, stratified, systematic, and cluster sampling. Special emphasis on estimation procedures including ratio and regression methods, and topics selected from allocations, direct sampling, inverse sampling, randomized response sampling, computer simulation of random variables, bootstrap, jackknife, and cross validation. Special Note: Not available for credit to students who have completed STAT A602.
I. **Course Prerequisites**: (STAT A252 or STAT A253 or STAT A307) with minimum grade of C
J. **Fees**: Yes
K. **Stacked**: Yes: STAT A602

III. **Course Level Justification**

The course requires knowledge of topics typically covered in the prerequisite courses of STAT A252 or STAT A253 or STAT A307.

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

A.	**Instructional Goals.** The instructor will:
1.	Explain survey methodology, execution and analysis.
2.	Describe a wide variety of sampling methods, estimation procedures, and sample size calculations.
3.	Explain Monte Carlo simulation of random variables, estimation of standard error and bias using bootstrapping, and other re-sampling methods.

B.	**Student Learning Outcomes:** Students will be able to:	**Assessment Method**
1.	Describe how to design and implement the steps that are required to conduct a sample survey.	Exams
2.	Distinguish between and describe advantages and disadvantages of various sampling methods.	Exams
3.	Compute parameter estimates and standard errors for various sampling schemes.	Exams and Mini Projects

4.	Use appropriate software for complex sampling designs.	Mini Projects

V. Topical Course Outline

1. Elements of Sampling Problem
    a. Introduction
    b. Estimation of population parameters
    c. Selection of sample size
2. Stratified Random Sampling
    a. Introduction
    b. Estimation population parameters
    c. Allocations
    d. Selection of sample size
    e. Stratification after selection of the sample
3. Ratio, Regression, and Difference Estimation
4. Systematic Sampling
    a. Introduction
    b. Estimation of population parameters
    c. Selection of sample size
5. Quota Sampling
6. Cluster Sampling
    a. Introduction
    b. Estimation of population parameters
    c. Selection of sample size
7. Estimation of Wildlife Population Size
    a. Direct sampling
    b. Inverse sampling
8. Randomized Response Sampling
9. Monte Carlo Simulation of Random Variables
10. Bootstrap, Jackknife, and Cross validation

VI. Suggested Texts

Scheaffer R.L., Mendenhall W., Ott R.L. and Gerow K.G. 2012. *Elementary Survey Sampling*, 7th edition. Cengage.

Thompson S.K. 2002. *Sampling*, 2nd edition. John Wiley.

VII Bibliography

* Cochran W. 1990. *Sampling Techniques*, 3rd edition. John Wiley.

* Efron B. 1986. *The Jackknife, the Bootstrap and Other Resampling Plans*. Siam.

Tryfos P. 1996. *Sampling Methods for Applied Research*. John Wiley.

* Classic Text

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	Mathematics and Statistics

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
STAT	A603	n/a	3.0	(3+0)

6. Complete Course Title
Advanced Regression Analysis

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 n/a Max Credits n/a

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2015 To: 99/9999

12. ☐ Cross Listed with _____
☒ Stacked with STAT A403
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. MS in AEST/STAT A402, A403, A404, A405, A407, A408, A601	03/19/2014	John Olofsson
2.		
3.		

Initiator Name (typed): Kanapathi Thiru Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 03/11/2014
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 03/18/2014

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)*
Simple and multiple regression, statistical inferences in regression, matrix formulation of regression, polynomial regression, ridge regression, nonlinear regression, and normal correlation models. A major statistical package is used as a tool to aid calculations required for many of the techniques. Students will be required to complete a major research project, conduct literature review, write a short paper, and make a presentation in a public forum. Special note: Not available for credit to students who have completed STAT A403.

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)*
Graduate Standing

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Support MS in AEST, and interdisciplinary graduate degrees

Initiator (faculty only) Date
Rieken Venema
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
College of Arts and Sciences
Mathematics & Statistics Department

I. **Initiation Date:** Spring 2014

II. **Course Information**

A. **College**: College of Arts and Sciences
B. **Course Subject/Number**: STAT A603
C. **Credits**: 3
D. **Contact Hours**: 3+0
E. **Course Title**: Advanced Regression Analysis
F. **Repeat Status**: No
G. **Grading Basis**: A-F
H. **Course Description**: Simple and multiple regression, statistical inferences in regression, matrix formulation of regression, polynomial regression, ridge regression, nonlinear regression, and normal correlation models. A major statistical package is used as a tool to aid calculations required for many of the techniques. Students will be required to complete a major research project, conduct literature review, write a short paper, and make a presentation in a public forum. Special note: Not available for credit to students who have completed STAT A403.
I. **Course Prerequisites**: n/a
J. **Fees**: Yes
K. **Stacked**: Yes: STAT A403
L. **Registration Restrictions**: Graduate standing

III. **Course Level Justification**

Students enrolled in this course will be expected to complete additional work at a higher level than those students enrolled in STAT A403, and complete a major research project.

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

A.	**Instructional Goals.** The instructor will:
1.	Introduce simple linear regression, polynomial regression, multiple regression, and nonlinear regression models.
2.	Discuss methods for checking model adequacy and provide remedial measures to improve model adequacy.
3.	Present variable selection and model building.
4.	Guide with literature review and writing research papers.

B.	**Student Learning Outcomes:** Students will be able to:	**Assessment Method**
1.	Investigate and model the relationship between variables.	Exams
2.	Fit and check appropriate regression models.	Exams and Mini Projects

3.	Investigate the adequacy of conjectured models with many different techniques.	Exams and Mini Projects
4.	Select a suitable remedial measure to improve model adequacy.	Exams and Mini Projects
5.	Conduct a literature review, analyze experimental or observational data, write a research summary paper, and present findings in a public forum.	Major Project, Research Summary Papers, Presentation

V. Topical Course Outline

1. Some Basic Results in Probability and Statistics.
2. Basic Regression Analysis
    a. Linear regression with one independent variable
    b. Inferences in regression analysis
    c. Aptness of model and remedial measures
    d. Simultaneous inferences
    e. Inverse predictions
3. General Regression and Correlational Analysis
    a. Matrix approach to simple regression analysis
    b. Multiple regression
    c. Polynomial regression
    d. Indicator variables
    e. Variable selection methods and model building
    f. Autocorrelation in time series data
    g. Non-linear regression

VI. Suggested Texts

Neter J., Kutner M.H., Nachtsheim C.J. & Neter J. 2004. *Applied Linear Regression Models,* 4th edition. Irwin.

Montgomery C.M., Peck E.A. & Vining G G. 2013. *Introduction to Linear Regression Analysis*, 5th edition. Wiley.

VII Bibliography

Chatterjee S. & Hadi S.A. 2012. *Regression Analysis by Example,* 5th edition. Wiley.

Draper N.R. & Smith H. 1998. *Applied Regression Analysis,* 3rd edition. Wiley.

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	Mathematics and Statistics

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
STAT	A403	n/a	3	(3+0)

6. Complete Course Title
Regression Analysis

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 Guide (please specify)

9. Repeat Status No # of Repeats n/a Max Credits n/a

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Spring/2015 To: 99/9999

12. ☐ Cross Listed with _____
☒ Stacked with STAT A603
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. MS in AEST/STAT A402, A403, A404, A405, A407, A408, A601	03/19/2014	John Olofsson
2.		
3.		

Initiator Name (typed): Kanapathi Thiru Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 3/11/2014
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 03/18/2014

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)*
Simple and multiple regression, statistical inferences in regression, matrix formulation of regression, polynomial regression, ridge regression, nonlinear regression, and normal correlation models. A major statistical package is used as a tool to aid calculations required for many of the techniques. Special Note: Not available for credit to students who have completed STAT A603.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
STAT A308 with minimum grade of C

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

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

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

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Stack with graduate course to support MS in AEST, and interdisciplinary graduate degrees

Initiator (faculty only) Date
Rieken Venema
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
College of Arts and Sciences
Mathematics & Statistics Department

I. **Initiation Date:** Spring 2014

II. **Course Information**

A. **College**: College of Arts and Sciences
B. **Course Subject/Number**: STAT A403
C. **Credits**: 3
D. **Contact Hours**: 3+0
E. **Course Title**: Regression Analysis
F. **Repeat Status**: No
G. **Grading Basis**: A-F
H. **Course Description**: Simple and multiple regression, statistical inferences in regression, matrix formulation of regression, polynomial regression, ridge regression, nonlinear regression, and normal correlation models. A major statistical package is used as a tool to aid calculations required for many of the techniques. Special Note: Not available for credit to students who have completed STAT A603.
I. **Course Prerequisites**: STAT A308 with minimum grade of C
J. **Fees**: Yes
K. **Stacked**: Yes: STAT A603

III. **Course Level Justification**

The course requires knowledge of topics typically covered in the prerequisite course of STAT A308.

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

A.	**Instructional Goals.** The instructor will:
1.	Introduce simple linear regression, polynomial regression, multiple regression, and nonlinear regression models.
2.	Discuss methods for checking model adequacy and provide remedial measures to improve model adequacy.
3.	Present variable selection and model building.

B.	**Student Learning Outcomes:** Students will be able to:	**Assessment Method**
1.	Investigate and model the relationship between variables.	Exams and Mini Projects
2.	Fit and check appropriate regression models.	Exams and Mini Projects
3.	Investigate the adequacy of conjectured models with many different techniques.	Exams and Mini Projects
4.	Select a suitable remedial measure to improve model adequacy.	Exams and Mini Projects

V. Topical Course Outline

1. Some Basic Results in Probability and Statistics.
2. Basic Regression Analysis
    a. Linear regression with one independent variable
    b. Inferences in regression analysis
    c. Aptness of model and remedial measures
    d. Simultaneous inferences
    e. Inverse predictions
3. General Regression and Correlational Analysis
    a. Matrix approach to simple regression analysis
    b. Multiple regression
    c. Polynomial regression
    d. Indicator variables
    e. Variable selection methods and model building
    f. Autocorrelation in time series data
    g. Non-linear regression

VI. Suggested Texts

Kutner M.H., Nachtsheim C.J. & Neter J. 2005. *Applied Linear Regression Models,* 5th edition. Irwin.

Montgomery C.M., Peck, E.A. & Vining G.G. 2013. *Introduction to Linear Regression Analysis,* 5th edition. Wiley.

VII Bibliography

Chatterjee S. & Hadi S.A. 2012. *Regression Analysis by Example,* 5th edition. Wiley.

Draper N.R. & Smith H. 1998. *Applied Regression Analysis,* 3rd edition. Wiley.

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	Mathematics and Statistics

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
STAT	A604	n/a	3.0	(3+0)

6. Complete Course Title
Advanced Analysis of Variance

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 n/a Max Credits n/a

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2015 To: 99/9999

12. ☐ Cross Listed with _____ Cross-Listed Coordination

☒ Stacked with STAT A404 _____ 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. MS in AEST/STAT A402, A403, A404, A405, A407, A408, A601	03/19/2014	John Olofsson
2.		
3.		

Initiator Name (typed): Kanapathi Thiru Initiator Signed Initials: _____ Date: _____

13b. Coordination Email Date: 03/11/2014
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 03/18/2014

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)*
Single-factor models, factor effects, nonparametric tests, two-factor models, random and mixed effects models, multifactor studies, analysis of covariance, and selected experimental designs. A major statistical package is used as a tool to aid calculations required for many of the techniques. Students will be required to complete a major research project, conduct literature review, write a short paper, and make a presentation in a public forum. Special note: Not available for credit to students who have completed STAT A404.

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)*
Graduate standing

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Stack with graduate course to support MS in AEST, and interdisciplinary graduate degrees

Initiator (faculty only) Date
Rieken Venema
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
College of Arts and Sciences
Mathematics & Statistics Department

I. **Initiation Date:** Spring 2014

II. **Course Information**

A. **College**: College of Arts and Sciences
B. **Course Subject/Number**: STAT A604
C. **Credits**: 3
D. **Contact Hours**: 3+0
E. **Course Title**: Advanced Analysis of Variance
F. **Repeat Status**: No
G. **Grading Basis**: A-F
H. **Course Description**: Single-factor models, factor effects, nonparametric tests, two-factor models, random and mixed effects models, multifactor studies, analysis of covariance, and selected experimental designs. A major statistical package is used as a tool to aid calculations required for many of the techniques. Students will be required to complete a major research project, conduct literature review, write a short paper, and make a presentation in a public forum. Special note: Not available for credit to students who have completed STAT A404.
I. **Course Prerequisites**: n/a
J. **Fees**: Yes
K. **Stacked**: Yes: STAT A404
L. **Registration Restrictions**: Graduate standing

III. **Course Level Justification**

Students enrolled in this course will be expected to complete additional work at a higher level than those students enrolled in STAT A404, and complete a major research project.

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

A.	**Instructional Goals.** The instructor will:
1.	Introduce guidelines for designing experiments.
2.	Discuss experiments with single-factor, multi-factor, blocks, and nested or hierarchical designs with fixed, random or mixed effects.
3.	Discuss model adequacy checking and choice of sample size.
4.	Guide with literature review and writing research papers

B.	**Student Learning Outcomes:** Students will be able to:	**Assessment Method**
1.	Recognize a practical problem in order to design an experiment.	Exams and Mini Projects
2.	Choose the factors to be varied in the experiment, the ranges over which factors will be varied, the specific levels at which runs will be made, and the response variable to be	Exams and Mini Projects

	measured.	
3.	Understand the rationale behind the use of blocking and other noise-reducing designs.	Exams and Mini Projects
4.	Conduct a literature review, analyze experimental or observational data, write a research summary paper, and present findings in a public forum.	Major Project, Research Summary Paper, Presentation

V. **Topical Course Outline**

1. Some Basic Results in Probability and Statistics.
2. Basic Analysis of Variance
    a. Single factor analysis of variance
    b. Analysis of factor effects
    c. Implementation of ANOVA model
    d. Non-parametric tests, random effects and other topics in ANOVA.
3. Multifactor Analysis of Variance
    a. Two factor analysis of variance
    b. Equal and unequal sample sizes
    c. Random and fixed effect models for two factor studies
    d. Multifactor studies
    e. Analysis of covariance
4. Experimental Designs
    a. Completely randomized designs
    b. Randomized block design
    c. Nested designs
    d. Latin squares and related designs
    e. Rules for sums of squares and expected mean squares

VIII. Suggested Texts

Kutner M.H., Nachtsheim C.J., Neter J. & Li W. 2005. *Applied Linear Statistical Models,* 5th edition. McGraw-Hill/Irwin.

Montgomery D.C. 2013. *Design and Analysis of Experiments,* 8th edition. Wiley.

IX. Bibliography

* Cochran G.C. & Cox G.M. 1991. *Experimental Design,* 5th edition. Wiley.

Hicks C. 1999. *Fundamental Concepts in the Design of Experiments*, 5th edition. Oxford Press.

* Classic Text

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	Mathematics and Statistics

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
STAT	A404	n/a	3	(3+0)

6. Complete Course Title
Analysis of Variance

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 Guide (please specify)

9. Repeat Status No # of Repeats n/a Max Credits n/a

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Spring/2015 To: 99/9999

12. ☐ Cross Listed with _____
☒ Stacked with STAT A604
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. MS in AEST/STAT A402, A403, A404, A405, A407, A408, A601	03/192014	John Olofsson
2.		
3.		

Initiator Name (typed): Kanapathi Thiru Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 03/11/2014
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 03/18/2014

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)*
Single-factor models, factor effects, nonparametric tests, two-factor models, random and mixed effects models, multifactor studies, analysis of covariance, and selected experimental designs. A major statistical package is used as a tool to aid calculations required for many of the techniques. Special Note: Not available for credit to students who have completed STAT A604.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
STAT A308 with minimum grade of C

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

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

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

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Stack with graduate course to support MS in AEST, and interdisciplinary graduate degrees.

Initiator (faculty only) Date
Rieken Venema
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
College of Arts and Sciences
Mathematics & Statistics Department

I. **Initiation Date:** Spring 2014

II. **Course Information**

A. **College**: College of Arts and Sciences
B. **Course Subject/Number**: STAT A404
C. **Credits**: 3
D. **Contact Hours**: 3+0
E. **Course Title**: Analysis of Variance
F. **Repeat Status**: No
G. **Grading Basis**: A-F
H. **Course Description**: Single-factor models, factor effects, nonparametric tests, two-factor models, random and mixed effects models, multifactor studies, analysis of covariance, and selected experimental designs. A major statistical package is used as a tool to aid calculations required for many of the techniques. Special Note: Not available for credit to students who have completed STAT A604.
I. **Course Prerequisites**: STAT A308 with minimum grade of C
J. **Fees**: Yes
K. **Stacked**: Yes: STAT A604

III. **Course Level Justification**

The course requires knowledge of topics typically covered in the prerequisite course of STAT A308.

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

A.	**Instructional Goals.** The instructor will:
1.	Introduce guidelines for designing experiments.
2.	Discuss experiments with single-factor, multi-factor, blocks, and nested or hierarchical designs with fixed, random or mixed effects.
3.	Discuss model adequacy checking and choice of sample size.

B.	**Student Learning Outcomes:** Students will be able to:	**Assessment Method**
1.	Recognize a practical problem in order to design an experiment.	Exams and Mini projects
2.	Choose the factors to be varied in the experiment, the ranges over which factors will be varied, the specific levels at which runs will be made, and the response variable to be measured.	Exams and Mini Projects
3.	Understand the rationale behind the use of blocking and other noise-reducing designs.	Exams and Mini Projects

V. **Topical Course Outline**

1. Some Basic Results in Probability and Statistics.
2. Basic Analysis of Variance
    a. Single factor analysis of variance
    b. Analysis of factor effects
    c. Implementation of ANOVA model
    d. Non-parametric tests, random effects and other topics in ANOVA.
3. Multifactor Analysis of Variance
    a. Two factor analysis of variance
    b. Equal and unequal sample sizes
    c. Random and fixed effect models for two factor studies
    d. Multifactor studies
    e. Analysis of covariance
4. Experimental Designs
    a. Completely randomized designs
    b. Randomized block design
    c. Nested designs
    d. Latin squares and related designs
    e. Rules for sums of squares and expected mean squares

VIII. Suggested Text(s)

Neter J., Kutner M.H., Nachtsheim C.J., Neter J. & Li W. 2005. *Applied Linear Statistical Models,* 5th edition. McGraw-Hill/Irwin.

Montgomery D.C. 2013. *Design and Analysis of Experiments,* 8th edition. Wiley.

IX. Bibliography

* Cochran G.C. & Cox G.M. 1991. *Experimental Design.* 5th edition. Wiley.

Hicks C. 1999. *Fundamental Concepts in the Design of Experiments*, 5th edition. Oxford Press.

* Classic Text

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	Mathematics and Statistics

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
STAT	A607	n/a	3.0	(3+0)

6. Complete Course Title
Advanced Time Series Analysis

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 n/a Max Credits n/a

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2015 To: 99/9999

12. ☐ Cross Listed with _____
☒ Stacked with STAT A407
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. MS in AEST/STAT A402, A403, A404, A405, A407, A408, A601	03/19/2014	John Olofsson
2.		
3.		

Initiator Name (typed): Kanapathi Thiru Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 03/11/2014
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 03/18/2014

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)*
Decomposition of time series, seasonal adjustment methods, and index numbers. Forecasting models including causal models, trend models, and smoothing models. Autoregressive (AR) forecasting models, moving average (MA) forecasting models, and integrated (ARIMA) forecasting models. A major statistical package is used as a tool to aid calculations required for many of the techniques. Students will be required to complete a major research project, conduct literature review, write a short paper, and make a presentation in a public forum. Special note: Not available for credit to students who have completed STAT A407.

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)*
Graduate standing

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Stack with graduate course to support MS in AEST, and interdisciplinary graduate degrees.

Initiator (faculty only) Date
Rieken Venema
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
College of Arts and Sciences
Mathematics & Statistics Department

I. **Initiation Date:** Spring 2014

II. **Course Information**

A. **College**: College of Arts and Sciences
B. **Course Subject/Number**: STAT A607
C. **Credits**: 3
D. **Contact Hours**: 3+0
E. **Course Title**: Advanced Time Series Analysis
F. **Repeat Status**: No
G. **Grading Basis**: A-F
H. **Course Description**: Decomposition of time series, seasonal adjustment methods, and index numbers. Forecasting models including causal models, trend models, and smoothing models. Autoregressive (AR) forecasting models, moving average (MA) forecasting models, and integrated (ARIMA) forecasting models. A major statistical package is used as a tool to aid calculations required for many of the techniques. Students will be required to complete a major research project, conduct literature review, write a short paper, and make a presentation in a public forum. Special note: Not available for credit to students who have completed STAT A407.
I. **Course Prerequisites**: n/a
J. **Fees**: Yes
K. **Stacked**: Yes: STAT A407
L. **Registration Restrictions**: Graduate standing

III. **Course Level Justification**

Students enrolled in this course will be expected to complete additional work at a higher level than those students enrolled in STAT A407, and complete a major research project.

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

A.	**Instructional Goals.** The instructor will:
1.	Introduce decomposition of time series.
2.	Explain forecasting methods using a variety of smoothing techniques.
3.	Introduce the basic properties of AR models, MA models, ARMA models, and ARIMA models and teach how to identify these models.
4.	Explain diagnostic checks for model adequacy to select a tentative model and forecast with the selected model.
5.	Guide with literature review and writing research papers.

B.	**Student Learning Outcomes:** Students will be able to:	**Assessment Method**
1.	Recognize time series data, be able to use descriptive	Exams

	methods and decompose a series into different components.	
2.	Demonstrate understanding of a variety of forecasting methods based on exponential smoothing and other smoothing techniques.	Exams
3.	Identify appropriate time series models, perform diagnostic checks for model adequacy, and forecast with the selected model.	Exams and Mini Projects
4.	Conduct a literature review, analyze experimental or observational data, write a research summary paper, and present findings in a public forum.	Major Project, Research Summary Paper, Presentation

V. **Topical Course Outline**

1. Simple Descriptive Techniques
    a. Decomposition of time series
    b. Stationary time series
    c. The time series plot
    d. Transformations
    e. Analyzing series which contain a trend
    f. Analyzing series which contain seasonal variation
    g. Autocorrelation and the correlogram
2. Probability Models for Time Series
    a. Stochastic processes
    b. Stationary processes
    c. The autocorrelation function
3. Estimation in the Time Domain
    a. Estimating the autocovariance and autocorrelation functions
    b. Fitting an autoregressive process
    c. Fitting a moving average process
    d. Estimating the parameters of an ARMA model
    e. Estimating the parameters of an ARIMA model
    f. The Box-Jenkins seasonal model
4. Forecasting
    a. Exponential smoothing
    b. The Holt-Winters forecasting procedure
    c. The Box-Jenkins procedure
    d. Stepwise autoregression
5. Stationary Processes in the Frequency Domain
    a. The spectral distribution function
    b. The spectral density function
    c. The spectrum of a continuous process
6. Spectral Analysis
    a. Fourier analysis
    b. A simple sinusoidal model

c. Periodogram analysis
d. Estimation procedures
e. Analysis of continuous time series

7. Bivariate Processes
    a. Cross-covariance and cross-correlation functions
    b. The cross-spectrum

VI. Suggested Texts

Chatfield C. 2004. *The Analysis of Time Series*, 6th edition, Chapman & Hall.

Diebold F. 2006. *Elements of Forecasting*, 4th edition. Cengage.

VII Bibliography

Box G.E.P., Jenkins G.M. & Reinsel G.C. 2008. *Time Series Analysis: Forecasting and Control*, 4th edition. Wiley.

Cryer J.D. & Chan K. 2008. *Time Series Analysis With Applications in R*, 2nd edition. Springer.

Shumway Robert. 2004. *Applied Statistical Time Series Analysis*. Springer.

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	Mathematics and Statistics

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
STAT	A407	n/a	3.0	(3+0)

6. Complete Course Title
Time Series Analysis

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 Guide (please specify)

9. Repeat Status No # of Repeats n/a Max Credits n/a

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Spring/2015 To: 99/9999

12. ☐ Cross Listed with _____
☒ Stacked with STAT A607
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. MS in AEST/STAT A402, A403, A404, A405, A407, A408, A601	03/19/2014	John Olofsson
2.		
3.		

Initiator Name (typed): Kanapathi Thiru Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 03/11/2014
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 03/18/2014

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)*
Decomposition of time series, seasonal adjustment methods, and index numbers. Forecasting models including causal models, trend models, and smoothing models. Autoregressive (AR) forecasting models, moving average (MA) forecasting models, and integrated (ARIMA) forecasting models. A major statistical package is used as a tool to aid calculations required for many of the techniques. Special Note: Not available for credit to students who have completed STAT A607.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
(STAT A307 or STAT A308) with minimum grade of C

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

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

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

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Stack with graduate course to support MS in AEST, and interdisciplinary graduate degrees.

Initiator (faculty only) Date
Rieken Venema
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
College of Arts and Sciences
Mathematics & Statistics Department

I. **Initiation Date:** Spring 2014

II. **Course Information**

A. **College**: College of Arts and Sciences
B. **Course Subject/Number**: STAT A407
C. **Credits**: 3
D. **Contact Hours**: 3+0
E. **Course Title**: Time Series Analysis
F. **Repeat Status**: No
G. **Grading Basis**: A-F
H. **Course Description**: Decomposition of time series, seasonal adjustment methods, and index numbers. Forecasting models including causal models, trend models, and smoothing models. Autoregressive (AR) forecasting models, moving average (MA) forecasting models, and integrated (ARIMA) forecasting models. A major statistical package is used as a tool to aid calculations required for many of the techniques. Special Note: Not available for credit to students who have completed STAT A607.
I. **Course Prerequisites**: (STAT A307 or STAT A308) with minimum grade of C
J. **Fees**: Yes
K. **Stacked**: Yes: STAT A607

III. **Course Level Justification**

The course requires knowledge of topics typically covered in the prerequisite courses of STAT A307 or STAT A308.

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

A.	**Instructional Goals.** The instructor will:
1.	Introduce decomposition of time series.
2.	Explain forecasting methods using a variety of smoothing techniques.
3.	Introduce the basic properties of AR models, MA models, ARMA models, and ARIMA models and teach how to identify these models.
4.	Explain diagnostic checks for model adequacy to select a tentative model and forecast with the selected model.

B.	**Student Learning Outcomes:** Students will be able to:	**Assessment Method**
1.	Recognize time series data, be able to use descriptive methods, and decompose a series into different components.	Exams
2.	Demonstrate understanding of a variety of forecasting methods based on exponential smoothing and other smoothing techniques.	Exams

3.	Identify appropriate time series models, perform diagnostic checks for model adequacy, and forecast with the selected model.	Exams and Mini Projects

V. **Topical Course Outline**

1. Simple Descriptive Techniques
    a. Decomposition of time series
    b. Stationary time series
    c. The time series plot
    d. Transformations
    e. Analyzing series which contain a trend
    f. Analyzing series which contain seasonal variation
    g. Autocorrelation and the correlogram
2. Probability Models for Time Series
    a. Stochastic processes
    b. Stationary processes
    c. The autocorrelation function
3. Estimation in the Time Domain
    a. Estimating the autocovariance and autocorrelation functions
    b. Fitting an autoregressive process
    c. Fitting a moving average process
    d. Estimating the parameters of an ARMA model
    e. Estimating the parameters of an ARIMA model
    f. The Box-Jenkins seasonal model
4. Forecasting
    a. Exponential smoothing
    b. The Holt-Winters forecasting procedure
    c. The Box-Jenkins procedure
    d. Stepwise autoregression
5. Stationary Processes in the Frequency Domain
    a. The spectral distribution function
    b. The spectral density function
    c. The spectrum of a continuous process
6. Spectral Analysis
    a. Fourier analysis
    b. A simple sinusoidal model
    c. Periodogram analysis
    d. Estimation procedures
    e. Analysis of continuous time series
7. Bivariate Processes
    a. Cross-covariance and cross-correlation functions
    b. The cross-spectrum

VI. Suggested Texts

Chatfield C. 2004. *The Analysis of Time Series,* 6th edition. Chapman Hall.

Diebold F. 2006. *Elements of Forecasting*, 4th edition. Cengage.

VII Bibliography

Box G.E.P., Jenkins G.M. and Reinsel G.C. 2008. *Time Series Analysis: Forecasting and Control*, 4th edition. Wiley.

Cryer J.D. & Chan K. 2008. *Time Series Analysis With Applications in R*, 2nd edition. Springer.

Shumway R. 2004. *Applied Statistical Time Series Analysis*. Springer.

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	Mathematics and Statistics

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
STAT	A608	n/a	3.0	(3+0)

6. Complete Course Title
Advanced Multivariate Statistics
Advanced Multivariate Stat
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: Fall/2015 To: 99/9999

12. ☐ Cross Listed with _____ Cross-Listed Coordination

☒ Stacked with STAT A408 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. MS in AEST/STAT A402, A403, A404, A405, A407, A408, A601	03/19/2014	John Olofsson
2.		
3.		

Initiator Name (typed): Kanapathi Thiru Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 03/11/2014
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 03/18/2014

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)*
Multivariate statistical methods including exploratory data analysis, geometrical interpretation of multivariate data, multivariate tests of hypotheses, multivariate analysis of variance, multivariate multiple regression, principal components, factor analysis, discriminant analysis, cluster analysis, and multidimensional scaling. Students will be required to complete a major research project, conduct literature review, write a short paper, and make a presentation in a public forum. Special note: Not available for credit to students who have completed STAT A408.

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)*
Graduate standing

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Support MS in AEST, and interdisciplinary graduate degrees.

Initiator (faculty only) Date
Kanapathi Thiru
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
College of Arts and Sciences
Mathematics & Statistics Department

I. **Initiation Date:** Spring 2014

II. **Course Information**

A. **College**: College of Arts and Sciences
B. **Course Subject/Number**: STAT A608
C. **Credits**: 3
D. **Contact Hours**: 3+0
E. **Course Title**: Advanced Multivariate Statistics
F. **Repeat Status**: No
G. **Grading Basis**: A-F
H. **Course Description**: Multivariate statistical methods including exploratory data analysis, geometrical interpretation of multivariate data, multivariate tests of hypotheses, multivariate analysis of variance, multivariate multiple regression, principal components, factor analysis, discriminant analysis, cluster analysis, and multidimensional scaling. Students will be required to complete a major research project, conduct literature review, write a short paper, and make a presentation in a public forum. Special note: Not available for credit to students who have completed STAT A408.
I. **Course Prerequisites**: n/a
J. **Fees**: Yes
K. **Stacked**: Yes: STAT A408
L. **Registration Restrictions**: Graduate standing

III. **Course Level Justification**

Students enrolled in this course will be expected to complete additional work at a higher level than those students enrolled in STAT A408, and complete a major research project.

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

A.	**Instructional Goals.** The instructor will:
1.	Introduce multivariate distributions, estimation, and hypothesis tests.
2.	Explain variable reduction techniques such as principal components and factor analysis.
3.	Explain classification by discriminant analysis.
4.	Discuss relationship between variables through canonical correlation.
5.	Guide with literature review and writing research papers.

B.	**Student Learning Outcomes:** Students will be able to:	**Assessment Method**
1.	Demonstrate understanding of the difference	Exams

	between univariate and multivariate statistics.	
2.	Perform multivariate estimation and hypothesis tests.	Exams
3.	Demonstrate understanding of variable reduction techniques and be able to solve classification problems.	Exams and Mini Projects
4.	Estimate and investigate canonical correlation between two sets of variables.	Mini Projects
5.	Conduct a literature review, analyze experimental or observational data, write a research summary paper, and present findings in a public forum.	Major Project, Research Summary Paper, Presentation

V. **Topical Course Outline**

1. The Nature of Multivariate Data
2. Some Elementary Statistical Concepts
    a. Normal random variables
    b. Estimation
    c. Hypothesis testing
    d. ANOVA
3. Matrix Algebra
    a. Elementary operations
    b. Determinant and Inverse
    c. Rank of a matrix
    d. Quadratic forms
    e. Characteristic roots
4. Multivariate Normal Distribution
    a. Joint, marginal, and conditional distributions
    b. MLE of mean vector and the covariance matrix
5. Tests of Hypotheses on Means
    a. Hotelling's T^2 statistic
    b. Confidence regions
    c. MANOVA
6. Testing Multivariate Distances
7. Principal Component (PC) Analysis
    a. The geometrical meaning of PC's
    b. The interpretation of PC's
    c. Sampling properties of PC's
8. Factor Analysis
    a. The factor analysis model
    b. The principal factor solution
    c. The maximum likelihood solution
    d. Rotation of factors and factor scores
9. Discriminant Analysis and Allocation
    a. Discrimination using Mahalanobis distances
    b. Canonical discriminant functions
10. Cluster Analysis

a. Hierarchical clustering
b. Nonhierarchical clustering

11. Inferences from Covariance Matrices
12. Multidimensional Scaling

VI. Suggested Texts

Raykov T. & Marcoulides G.A. 2008. *An Introduction to Applied Multivariate Analysis*. Routledge.

Spencer N.H. 2013. *Essentials of Multivariate Analysis*. Chapman and Hall/CRC.

VII Bibliography

Johnson R. A. & Wichern D. W. 2007. *Applied Multivariate Statistical Analysis*, 6th edition. Pearson.

Manly B. 2004. *Multivariate Statistical Methods: A Primer*, 3rd edition. Chapman & Hall.

Morrison D. F. 2005. *Multivariate Statistical Methods*, 4th edition. Cengage.

Rencher A.V. and Christensen W. F. 2012. *Methods of Multivariate Analysis*, 3rd edition. Wiley.

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	Mathematics and Statistics

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
STAT	A408	n/a	3.0	(3+0)

6. Complete Course Title
Multivariate Statistics

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 Guide (please specify)

9. Repeat Status No # of Repeats n/a Max Credits n/a

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Spring/2015 To: 99/9999

12. ☐ Cross Listed with _____ Cross-Listed Coordination
☒ Stacked with STAT A608 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. MS in AEST/STAT A402, A403, A404, A405, A407, A408, A601	03/19/2014	John Olofsson
2.		
3.		

Initiator Name (typed): Kanapathi Thiru Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 03/11/2014
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 03/18/2014

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)*
Multivariate statistical methods including exploratory data analysis, geometrical interpretation of multivariate data, multivariate tests of hypotheses, multivariate analysis of variance, multivariate multiple regression, principal components, factor analysis, discriminant analysis, cluster analysis, and multidimensional scaling. Special Note: Not available for credit to students who have completed STAT A608.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
STAT A308 with minimum grade of C

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

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

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

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Stack with graduate course to support MS in AEST, and interdisciplinary graduate degrees.

Initiator (faculty only) Date
Kanapathi Thiru
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
College of Arts and Sciences
Mathematics & Statistics Department

I. **Initiation Date:** Spring 2014

II. **Course Information**

A. **College**: College of Arts and Sciences
B. **Course Subject/Number**: STAT A408
C. **Credits**: 3
D. **Contact Hours**: 3+0
E. **Course Title**: Multivariate Statistics
F. **Repeat Status**: No
G. **Grading Basis**: A-F
H. **Course Description**: Multivariate statistical methods including exploratory data analysis, geometrical interpretation of multivariate data, multivariate tests of hypotheses, multivariate analysis of variance, multivariate multiple regression, principal components, factor analysis, discriminant analysis, cluster analysis, and multidimensional scaling. Special Note: Not available for credit to students who have completed STAT A608.
I. **Course Prerequisites**: STAT A308 with minimum grade of C
J. **Fees**: Yes
K. **Stacked**: Yes: STAT A608

III. **Course Level Justification**

The course requires knowledge of topics typically covered in the prerequisite course of STAT A308.

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

A.	**Instructional Goals.** The instructor will:
1.	Introduce multivariate distributions, estimation and hypothesis tests.
2.	Explain variable reduction techniques such as principal components and factor analysis.
3.	Explain classification by discriminant analysis.
4.	Discuss relationship between variables through canonical correlation.

B.	**Student Learning Outcomes:** Students will be able to:	**Assessment Method**
1.	Demonstrate understanding of difference between univariate and multivariate statistics.	Exams
2.	Perform multivariate estimation and hypothesis tests.	Exams
3.	Demonstrate understanding of variable reduction techniques and be able to solve classification problems.	Exams and Mini Projects

4.	Estimate and investigate canonical correlation between two sets of variables.	Mini Projects

V. **Topical Course Outline**

1. The Nature of Multivariate Data
2. Some Elementary Statistical Concepts
    a. Normal random variables
    b. Estimation
    c. Hypothesis testing
    d. ANOVA
3. Matrix Algebra
    a. Elementary operations
    b. Determinant and inverse
    c. Rank of a matrix
    d. Quadratic forms
    e. Characteristic roots
4. Multivariate Normal Distribution
    a. Joint, marginal, and conditional distributions
    b. MLE of mean vector and the covariance matrix
5. Tests of Hypotheses on Means
    a. Hotelling's T^2 statistic
    b. Confidence regions
    c. MANOVA
6. Testing Multivariate Distances
7. Principal Component (PC) Analysis
    a. The geometrical meaning of PC's
    b. The interpretation of PC's
    c. Sampling properties of PC's
8. Factor Analysis
    a. The factor analysis model
    b. The principal factor solution
    c. The maximum likelihood solution
    d. Rotation of factors and factor scores
9. Discriminant Analysis and Allocation
    a. Discrimination using Mahalanobis distances
    b. Canonical discriminant functions
10. Cluster Analysis
    a. Hierarchical clustering
    b. Nonhierarchical clustering
11. Inferences from Covariance Matrices
12. Multidimensional Scaling

VI. **Suggested Texts**

Raykov T. & Marcoulides G.A. 2008. *An Introduction to Applied Multivariate*

Analysis. Routledge.

Spencer N.H. 2013. *Essentials of Multivariate Analysis*. Chapman and Hall/CRC.

VII **Bibliography**

Johnson R. A. & Wichern D.W. 2007. *Applied Multivariate Statistical Analysis,* 6th edition. Pearson.

Manly B. 2004. *Multivariate Statistical Methods: A Primer*, 3rd edition. Chapman & Hall.

Morrison D. F. 2005. *Multivariate Statistical Methods,* 4th edition. Cengage.

Rencher A.V. and Christensen W. F. 2012. *Methods of Multivariate Analysis*, 3rd edition. Wiley.

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	Anthropology

2. Complete Program Title/Prefix
Master of Arts, Anthropology

3. Type of Program

Choose one from the appropriate drop down menu: Undergraduate: CHOOSE ONE or Graduate: Master of Arts

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: CAS

Initiator Name (typed): Diane K. Hanson Initiator Signed Initials: _____
Date:_____

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: 10/13/2013

6c. Coordination with Library Liaison Date: 10/13/2013

7. Title and Program Description - Please attach the following:

☒ Cover Memo ☒ Catalog Copy in Word using the track changes function

8. Justification for Action
Revisions of courses to streamline offerings to make more efficient for students.

_____ Initiator (faculty only) Date Diane K. Hanson 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

COLLEGE OF ARTS AND SCIENCES

ANTHROPOLOGY

Beatrice McDonald Building (BMH), Room 231, (907) 786-6840
www.uaa.alaska.edu/anthropology

Master of Arts, Anthropology

The Master of Arts in Anthropology, with emphases in general or applied anthropology, is designed to provide a rigorous background in contemporary theory and practice in anthropology, particularly through the use of proseminars, internships, and independent research. The MA degree requires a research-based thesis. Within the MA program, the applied anthropology emphasis offers specialized tracks designed to train students in applied aspects of anthropology that may be employment related. The applied cultural anthropology track identifies and assists in resolving current social issues in their cultural dimensions. The applied biological anthropology track encompasses forensic anthropology, medical anthropology, and other practical applications of physical anthropology. The cultural resource management track involves the inventory, assessment, and conservation of archaeological and historical sites and remains, and places of traditional cultural importance, as a part of a larger management framework.

Program Student Learning Outcomes

Students graduating with a Master of Arts in Anthropology will be able to:

- Demonstrate comprehension at a graduate level in their knowledge of core concepts, research methods and findings in archeology, cultural anthropology and biological anthropology;
- Demonstrate comprehension of specialized knowledge in the track or subfield they select from program choices;
- Demonstrate the capacity to design anthropological research, conduct that research, analyze research results and present a thesis concerning that research acceptable by the faculty of the anthropology department;
- Effectively apply the perspective, skills, and knowledge obtained in the anthropology Master's program in an employment capacity that requires their utilization.

Admission Requirements

See Admission Requirements for Graduate Degrees at the beginning of this chapter. Deadline for application is February 15 for fall semester admission. Students seeking admission into the anthropology MA program must meet the following requirements (1-3) and must submit the following documents (4-9):

1. Although graduating college or university seniors are invited to apply, no student may be formally admitted to graduate study until the baccalaureate degree has been awarded from an accredited college or university.
2. It is strongly recommended that the student has completed a minimum of 18 credits of undergraduate coursework in anthropology with a GPA of 3.00. An undergraduate major in anthropology is preferred.
3. Students must have at least a 3.00 overall undergraduate GPA.
4. Completed UAA graduate admissions application form.
5. Official transcripts of college-level work from each institution attended.
6. Graduate Record Examination (GRE) results (General Test Scores), taken within five years prior to the application date.
7. Three letters of recommendation from professors or other professionals particularly qualified to attest to the applicant's qualifications for graduate study.
8. A letter of intent, including a brief statement of the applicant's research and career goals and reasons for pursuing graduate study in anthropology at UAA.
9. Optional: An example of a substantial paper or research proposal indicative of the applicant's potential for graduate study.

Applicants may also be requested to complete a personal interview.

Acceptance is determined by the Anthropology Graduate Admissions Committee and is based on:

1. The prospective student's overall credentials and

2. The availability of appropriate faculty for student research interests.

Failure to meet any of the above criteria may result in conditional admission to the MA program. Conditional admission may be conferred on students if important deficiencies are identified in their undergraduate training. Conditionally admitted students are notified of those deficiencies, and required to rectify them at UAA, normally within a period of one year, before admission to regular status in the program is conferred. In some cases, deficiencies can be made up at another academic institution. Conditional students cannot receive graduate teaching assistantships, research assistantships or departmental travel/research grants.

Prospective graduate students are strongly advised to contact all potential faculty for research/advisor arrangements at an early stage of their admission process. An attempt is made to assign an initial advisor to students based on interests and other academic criteria.

Academic Progress Requirements

To maintain continuous progress toward the MA degree, a student in the graduate program is expected to complete each semester a minimum of 9 credits of coursework applicable to the program, with grades of A or B, for full-time students, or 3 credits per semester for part-time students. Failure to comply may result in the student being removed from the program. The same is true of students who fail to rectify conditions of their admission. In addition, students must advance to candidacy within five years, unless on an approved leave of absence. Such leaves of absence may not total more than four semesters.

Candidacy Requirements

See the beginning of this chapter for Advancement to Candidacy requirements. A student advances to candidacy by doing the following:

1. Select a graduate studies committee by the end of the first semester of graduate study.
2. Submit an official Graduate Studies Plan, as described in the UAA Catalog, after no more than three semesters of full-time graduate study.
3. Complete at least 24 semester-credits of non-thesis coursework applicable to the MA program.
4. Demonstrate research or statistical competence needed to complete the degree program, as approved by a student's graduate studies committee. Usually, UAA courses such as STAT A252 or STAT A253 or the equivalent, or computer skills such as photogrammetry, SEM image analysis, or GIS analysis will meet this requirement.
5. In addition, a student may be required to demonstrate mastery of a foreign language, if deemed necessary by the graduate studies committee.
6. Pass ANTH A602, ANTH A605, and ANTH A611 proseminars with a grade no less than a B. If necessary, a proseminar may be repeated once, but failure to earn a B or higher the second time will result in removal from the program.
7. Prepare a thesis prospectus for approval by the graduate studies committee.

Graduation Requirements

See University Requirements for Graduate Degrees at the beginning of this chapter.

Program Requirements

1. The following courses must be taken with a grade of A or B.
2. At least 21 credits must be taken at the graduate (600) level.
3. No more than 6 credits of internship/practicum or independent study may be applied to the degree, unless a student is taking more than one track in the applied anthropology emphasis, in which case 3 additional credits are available.
4. Courses outside the field of Anthropology may be taken as electives if approved by the student's advisor.
5. The student must advance to candidacy within three years based upon fulfillment of the Candidacy Requirements listed above.
6. The student must submit a written MA thesis to the graduate studies committee, conforming to UAA specifications.
7. The student must pass an oral defense of the thesis, open to the university community and the general public.
8. The student must submit an Application for Graduation.
9. One of the following study emphases must be chosen:

General Anthropology Emphasis

1. Complete the following:

ANTH A602	Proseminar in Cultural Anthropology*	3
ANTH A605	Proseminar in Biological Anthropology*	3
ANTH A611	Proseminar in Archaeology*	3
ANTH A620	Research Design	3
ANTH A699	Thesis Research	1-6
600 level elective courses		11-17
400 level elective courses		0-6

2. A total of 30 credits are required for the degree.

Applied Anthropology Emphasis

1. Complete the following:

ANTH A602	Proseminar in Cultural Anthropology*	3
ANTH A605	Proseminar in Biological Anthropology*	3
ANTH A611	Proseminar in Archaeology*	3
ANTH A620	Research Design	3
ANTH A699	Thesis Research	1-6
600 level elective courses		2-8
400 level elective courses		0-6

** All proseminar courses and ANTH A620 must be taken in residence at UAA. These courses may not be taken by directed study or by correspondence. Students may not take ANTH A620 or any proseminar until formally admitted to the MA program.*

2. Complete one of the following tracks:

Applied Cultural Anthropology Track

Complete the following courses (9 credits):

ANTH A615	Advanced Applied Anthropology	3
ANTH A630	Advanced Research Methods in Cultural Anthropology*	3
ANTH A695	Anthropology Practicum	3

**If this course was taken as an undergraduate upper division course (ANTH A430 or the equivalent), another course may be substituted with the approval of the student's graduate studies committee.*

Applied Biological Anthropology Track

Complete 9 credits from the following:		9
ANTH A645	Advanced Evolution of Humans and Disease (3)	
ANTH A655	Advanced Medical Anthropology (3)	
ANTH A657	Nutritional Anthropology (3)	
ANTH A695	Anthropology Practicum (3)	

Cultural Resource Management Track

a. Complete the following:

ANTH A675	Cultural Resource Management	3

b. Complete 6 credits from the following: 6

ANTH A631	Field Methods in Archaeology (1-8)*
ANTH A676	Ethical Issues in Archaeology (3)
ANTH A680	Advanced Analytical Techniques in

	Archaeology (3)
ANTH A681	Advanced Museum Studies in Anthropology (3)
ANTH A695	Anthropology Practicum (3)

**No more than 3 credits may be applied to this emphasis.*

3. A total of 30 credits are required for the degree.

FACULTY

Alan Boraas, Professor (KPC campus), asboraas@kpc.alaska.edu
Sarah Carraher, Assistant professor, scarrahe@uaa.alaska.edu
Clare Dannenberg, Assistant Professor, cjdannenberg@uaa.alaska.edu
Medeia Csoba DeHass, Assistant Professor, mkcsobadehass@kpc.alaska.edu
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Ryan Harrod, Assistant Professor, rharrod2@uaa.alaska.edu
Catherine Knott, Assistant Professor (KPC campus), chknott@kpc.alaska.edu
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David Yesner, Professor, dryesner@uaa.alaska.edu

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COLLEGE OF ARTS AND SCIENCES

ANTHROPOLOGY

~~*Professional Studies Building*~~*Beatrice McDonald Hall*Beatrice McDonald Building (~~*PSB*~~BMH~~*BMH*~~), Room ~~*1*~~2041~~*4*~~231, (907) 786-6840
www.uaa.alaska.edu/anthropology

Master of Arts, Anthropology

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7. Prepare a thesis prospectus for approval by the graduate studies committee.

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1. The following courses must be taken with a grade of A or B.
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3. No more than 6 credits of ~~Internship~~internship/~~Practicum~~ practicum or ~~Independent~~ independent ~~Study~~ study may be applied to the degree, unless a student is taking more than one track in the ~~Applied~~ applied ~~Anthropology~~ anthropology emphasis, in which case 3 additional credits are available.
4. Courses outside the field of Anthropology may be taken as electives if approved by the student's advisor.
5. The student must advance to candidacy within three years based upon fulfillment of the Candidacy Requirements listed above.
6. The student must submit a written MA thesis to the graduate studies committee, conforming to UAA specifications.
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ANTH A611	Proseminar in Archaeology*	3
ANTH A620	Research Design	3
ANTH A699	Thesis Research	1-6
600 level elective courses		11-17
400 level elective courses		0-6

2. A total of 30 credits are required for the degree.

Applied Anthropology Emphasis

1. Complete the following:

ANTH A602	Proseminar in Cultural Anthropology*	3
ANTH A605	Proseminar in Biological Anthropology*	3
ANTH A611	Proseminar in Archaeology*	3
ANTH A620	Research Design	3
ANTH A699	Thesis Research	1-6
600 level elective courses		2-8
400 level elective courses		0-6

** All proseminar courses and ~~Research Design~~ANTH A620 must be taken in residence at UAA. These courses may not be taken by directed study or by correspondence. Students may not take ~~Research Design~~ANTH A620 or any proseminar until formally admitted to the MA program.*

2. Complete one of the following tracks:

Applied Cultural Anthropology Track

Complete the following courses (9 credits):

ANTH A615	Advanced Applied Anthropology	3
ANTH A630	Advanced Research Methods in Cultural Anthropology*	3
ANTH A695	Anthropology Practicum	3

**If this course was taken as an undergraduate upper division course (ANTH A430 or the equivalent), another course may be substituted with the approval of the student's graduate studies committee.*

Applied Biological Anthropology Track

Complete 9 credits from the following: 9

ANTH A645 Advanced Evolution of Humans and Disease (3)
ANTH A655 Advanced Medical Anthropology (3)
ANTH A657 Nutritional Anthropology (3)
~~ANTH A685 Advanced Human Osteology (3)~~
~~ANTH A686 Advanced Applied Human Osteology (4)~~
ANTH A695 Anthropology Practicum (3)

Cultural Resource Management Track

a. Complete the following:

ANTH A675	Cultural Resource Management	3

b. Complete 6 credits from the following: 6

ANTH A631	Field Methods in Archaeology (1-8)*
ANTH A676	Ethical Issues in Archaeology (3)
ANTH A680	Advanced Analytical Techniques in Archaeology (3)
ANTH A681	Advanced Museum Studies in Anthropology (3)
ANTH A695	Anthropology Practicum (3)

**No more than 3 credits may be applied to this emphasis.*

3. A total of 30 credits are required for the degree.

FACULTY

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~~*David Yesner, Professor, AFDRY@uaa.alaska.edu*~~

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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	ASSC Division of Social Science	Anthropology

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
ANTH	A615	N/A	3	(3+0)

6. Complete Course Title
Advanced Applied Anthropology

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/2015 To: Fall/9999

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

☒ Stacked with ANTH A415

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. Anthropology MA	10/31/2013	Paul White
2.		
3.		

Initiator Name (typed): Sally Carraher Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 10/31/2013
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 10/31/2013

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 applied anthropology, theory, methods, and the history of applied anthropology in the United States, with an emphasis on applying anthropology for social justice in Alaska. Students will conduct a local research project as a team through engagement with community institutions, thereby learning the methods of applying anthropology to solve contemporary sociocultural issues and problems.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
Anth 202 completed 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)*
Graduate standing

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Updating course description and classroom approach to keep up with innovative teaching strategies being used for similar courses at other universities. Updating prerequisites to ensure students have taken Cultural Anthropology (ANTH202).

Initiator (faculty only) Date
Sally Carraher
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
COURSE CONTENT GUIDE

I. Date of initiation: October, 2013

II. A. College or school: CAS
B. Course title: Applied Anthropology
C. Course prefix: ANTH
D. Course number: A615
E. Credits and Contact hours: 3.0 credits, 3+0 contact hours
F. Grading: A-F
G. Stacking: ANTH A415
H. Implementation Date: Spring 2015
I. Course description: Advanced applied anthropology, theory, methods, and the history of applied anthropology in the United States, with an emphasis on applying anthropology for social justice in Alaska. Students will conduct a local research project as a team through engagement with community institutions, thereby learning the methods of applying anthropology to solve contemporary sociocultural issues and problems.
J. Course prerequisites: ANTH A202
K. Registration restrictions: none
L. Course fee: No

III. Course activities/teaching methods:
Course will be offered every other academic year. Each time course is offered, the instructor will have identified a local client and research project, and the main research focus/question for the class to work on as a team. Students work collaboratively with the client to identify specific research questions, project timeline, project data collection methods (i.e. open or structured interviews, focus groups, questionnaire surveys, oral histories, life histories, archival research), and develop project deliverables for the client (i.e. a final report, a web site, pamphlets, public presentation, community education materials). Through this approach, students learn through personal experience how to actually do applied anthropological research with an emphasis on promoting social justice in Alaska. In addition to providing educational materials about the theory, methods, and history of applied anthropology, the instructor serves as a facilitator and mediator for students and the project client.

IV. Course level justification
This course is designed to fulfill the requirements of graduate students in their 600-course-work requirement for the MA – particularly those pursuing the applied track in the MA, although students in the general anthropology MA track may also take the course. Particularly, this course requires students to develop commitments to civic engagement by applying anthropological methodologies and theoretical perspectives through conducting real research for a community client. The structure of this course requires high-level critical

and reflexive thinking, organizational skills, working as part of a team, qualitative and quantitative analysis, and effective written and oral communication skills. As a stacked course with undergraduates at the 400-level, ANTH A615 is designed to develop leadership and management skills as graduate students serve as project managers to guide and oversee undergraduate students in research planning, data collection and analysis, and co-authored writing assignments.

V. Instructional goals and student outcomes:

A. The instructor will:

1. Explain the core concepts, historical developments, methods employed, and major results of applying anthropological theory and method to the understanding and amelioration of sociocultural problems or challenges in Alaska, the US, and worldwide.
2. Identify and discuss the major subfields in applied anthropology, and the kinds of employment available in each related to one's educational achievement and experience.
3. Explain the ethical principles required of applied and practicing anthropologists, proving illustrations of both appropriate and unethical activity in the field.
4. Serve as a project facilitator and a mediator between students the client.
5. Identify a client (person, community group, or organization) in the Anchorage/Mat-Su area before the start of the semester, and work with the client to identify the main research topic and people who will be involved in the project (i.e. interviewees).
6. Obtain IRB and any other necessary approvals/licenses before the start of the semester, as well as project funding (if needed).

B. Student learning outcomes:

1. Explore and synthesize the core concepts, historical developments, methods and results of applying anthropological theory and method to sociocultural problems.
2. Integrate knowledge of the development, activities appropriate to, and notable results of applied anthropology.
3. Critically reflect on the ethical principles adhered to in this field.
4. Gain experience and competency in types of methods commonly used in applied anthropology.
5. Gain experience in designing, carrying out, and analyzing anthropological research with an applied focus; and in the development and dissemination of research deliverables to a client.
6. Work effectively as a part of a team.

7. Work as project managers to assist the instructor with mentoring undergraduate student research and writing; and oversee particular aspects of project completion.

VI. Assessment:

1. Graduate students will receive a final grade for the course (A-F). Graduate students will maintain research journals cataloguing their progress and accounting for individual contributions and activities related to the class research project. Graduate students will be assessed based on the quality, rigor, completion, and collegiality reflected in their journals, in-class activities, and the final database and project reports developed for delivery to the class client. The journal also provides the instructor with information about student participation and success outside of the classroom – thus highlighting contributions to the class project that may not be readily observable in the classroom or the final report to the client.
2. Graduate students will be assessed, in addition to the above, based on their performance as mentors to the undergraduates, as reflected in their own journal entries and the instructor's observations during class activities. Graduate students are expected to contribute to class research, analysis, and writing at a higher level – and will work as project managers under the instructor to guide undergraduate student work.

VII. Topical course outline:

1. Introduction and overview; distinction between basic and applied anthropological research
2. History and kinds of applied anthropology, globally, in the US, and with a special emphasis on Alaska
3. Ethics in applied research and practice
4. Method and theory in applied anthropology:
    a. Ethnography, participant observation, key-informant interviewing, oral and life histories, qualitative analyses
    b. Focus groups, questionnaire surveys, quantitative analyses
5. Research design and process:
    a. Identifying core research problem and developing specific research questions to answer the problem
    b. Time management and troubleshooting
    c. Population sampling techniques
    d. Designing research instruments (surveys, interviews)
    e. Storing, organizing, coding, and analyzing data
    f. Writing research dissemination materials for clients and public audiences

VIII. Suggested texts:

Beck, Sam & Carl Maida. 2013. Toward Engaged Anthropology. Berghan Books.

Pelto, Pertti J. 2014. Applied Ethnography. Left Coast Press.

IX. Bibliography:

A. Classical literature:

1. American Anthropological Association Ethical Guidelines. 1998. http://www.aaanet.org/committees/ethics/ethcode.html.
2. Baer, Hans, Singer, Merrill & Ida Susser. 2003. Medical Anthropology and the World System.
3. Ervin, Alexander M. 2004. Applied Anthropology: Tools and Perspectives for Contemporary Practice, 2nd edition. Pearson Publishing.
4. Feldman, Kerry, Langdon, Steven J. & N. Natcher. 2005. Northern Engagement: Alaskan Society and Applied Cultural Anthropology, 1973-2003. *Alaska Journal of Anthropology* 3(1):121-155.
5. Wheeler, Polly & Tom Thorton. 2005. Subsistence Research in Alaska: A Thirty Year Retrospective. *Alaska Journal of Anthropology* 3(91)69-103.

B. Recent literature:

1. Benard, Russell H. 2006. Research Methods in Anthropology, 4th edition.

2. Denzin, Norman K., Lincoln Yvonna S. & Linda Tuhiwai Smith. 2008. Handbook of Critical and Indigenous Methodologies.

3. Henry, Lisa & Roxanna Manoochehri. 2010. On Becoming an Applied Anthropologist: Collaboration and Clients in the Classroom. *Practicing Anthropology* 32(2):26-30.

4. US Department of Health, Education, and Wealth. 2010. The Belmont Report: Ethical Principles and Guidelines for the Protection of Human Subjects of Research. http://ohsr.od.nih.gov/guidelines/belmont.html.

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	Anthropology

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
ANTH	A415	N/A	3	(3+0)

6. Complete Course Title
Applied Anthropology

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/2015 To: Fall/9999

12. ☐ Cross Listed with _____
☒ Stacked with ANTH A615
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. BA/BS Anthropology	10/31/2013	Paul White
2.		
3.		

Initiator Name (typed): Sally Carraher Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 10/31/2013
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 10/31/2013

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)*
Applied anthropology, theory, methods, and the history of applied anthropology in the United States, with an emphasis on applying anthropology for social justice in Alaska. Students will conduct a local research project as a team through engagement with community institutions, thereby learning the methods of applying anthropology to solve contemporary sociocultural issues and problems.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
ANTH A202, 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
Updating course description and classroom approach to keep up with innovative teaching strategies being used for similar courses at other universities. Updating prerequisites to ensure students have taken Cultural Anthropology (ANTH A202).

Initiator (faculty only) Date
Sally Carraher
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
COURSE CONTENT GUIDE

I. Date of initiation: October, 2013

II. A. College or school: CAS
B. Course title: Applied Anthropology
C. Course prefix: ANTH
D. Course number: A415
E. Credits and Contact hours: 3.0 credits, 3+0 contact hours
F. Grading: A-F
G. Stacking: ANTH A615
H. Implementation Date: Spring 2015
I. Course description: Applied anthropology, theory, methods, and the history of applied anthropology in the United States, with an emphasis on applying anthropology for social justice in Alaska. Students will conduct a local research project as a team through engagement with community institutions, thereby learning the methods of applying anthropology to solve contemporary sociocultural issues and problems.
J. Course prerequisites: ANTH A202
K. Registration restrictions: none
L. Course fee: No

III. Course activities/teaching methods:
Course will be offered every other academic year. Each time course is offered, the instructor will have identified a local client and research project, and the main research focus/question for the class to work on as a team. Students work collaboratively with the client to identify specific research questions, project timeline, project data collection methods (i.e. open or structured interviews, focus groups, questionnaire surveys, oral histories, life histories, archival research), and develop project deliverables for the client (i.e. a final report, a web site, pamphlets, public presentation, community education materials). Through this approach, students learn through personal experience how to actually do applied anthropological research with an emphasis on promoting social justice in Alaska. In addition to providing educational materials about the theory, methods, and history of applied anthropology, the instructor serves as a facilitator and mediator for students and the project client.

IV. Course level justification
This course is designed to fulfill the requirements of students in their upper-division course-work for the major, building from analysis, writing, literature review, and presentations skills gained in Tier I and II GER courses. Particularly, this course requires students to develop commitments to civic engagement by applying anthropological methodologies and theoretical perspectives through conducting real research for a community client. The structure of this course requires high-level critical and reflexive thinking,

organizational skills, working as part of a team, qualitative and quantitative analysis, and effective written and oral communication skills.

V. Instructional goals and student outcomes:

A. The instructor will:

1. Explain the core concepts, historical developments, methods employed, and major results of applying anthropological theory and method to the understanding and amelioration of sociocultural problems or challenges in Alaska, the US, and worldwide.
2. Identify and discuss the major subfields in applied anthropology, and the kinds of employment available in each related to one's educational achievement and experience.
3. Explain the ethical principles required of applied and practicing anthropologists, proving illustrations of both appropriate and unethical activity in the field.
4. Serve as a project facilitator and a mediator between students and the client.
5. Identify a client (person, community group, or organization) in the Anchorage/Mat-Su area before the start of the semester, and work with the client to identify the main research topic and people who will be involved in the project (i.e. interviewees).
6. Obtain IRB and any other necessary approvals/licenses before the start of the semester, as well as project funding (if needed).

B. Student learning outcomes:

Student learning outcome	**Assessment measures**
1. Explore and synthesize the core concepts, historical developments, methods and results of applying anthropological theory and method to sociocultural problems.	Writing assignments, student research journals, class discussion, and class research project planning
2. Integrate knowledge of the development, activities appropriate to, and notable results of applied anthropology into class research and activities.	Writing assignments, student research journals, class discussion, and class research project planning
3. Critically reflect on the ethical principles adhered to in this field.	Writing assignments, student research journals, class discussion, and class research project planning
4. Gain experience and competency in types of methods commonly used in	Writing assignments, student research journals, and student self-evaluations

applied anthropology.	
5. Gain experience in designing, carrying out, and analyzing anthropological research with an applied focus; and in the development and dissemination of research deliverables to a client.	Writing assignments, student research journals, student self-evaluations
6. Work effectively as part of a team.	Co-authored writing assignments, class discussion, class research project planning, and student self-evaluations

VI. Topical course outline:

1. Introduction and overview; distinction between basic and applied anthropological research
2. History and kinds of applied anthropology, globally, in the US, and with a special emphasis on Alaska
3. Ethics in applied research and practice
4. Method and theory in applied anthropology:
    a. Ethnography, participant observation, key-informant interviewing, oral and life histories, qualitative analyses
    b. Focus groups, questionnaire surveys, quantitative analyses
5. Research design and process:
    a. Identifying core research problem and developing specific research questions to answer the problem
    b. Time management and troubleshooting
    c. Population sampling techniques
    d. Designing research instruments (surveys, interviews)
    e. Storing, organizing, coding, and analyzing data
    f. Writing research dissemination materials for clients and public audiences

VII. Suggested texts:

Beck, Sam & Carl Maida. 2013. Toward Engaged Anthropology. Berghan Books.

Pelto, Pertti J. 2014. Applied Ethnography. Left Coast Press.

VIII. Bibliography:

A. Classical literature:

1. American Anthropological Association Ethical Guidelines. 1998. http://www.aaanet.org/committees/ethics/ethcode.html.
2. Baer, Hans, Singer, Merrill & Ida Susser. 2003. Medical Anthropology and the World System.
3. Ervin, Alexander M. 2004. Applied Anthropology: Tools and Perspectives for Contemporary Practice, 2nd edition. Pearson Publishing.

4. Feldman, Kerry, Langdon, Steven J. & N. Natcher. 2005. Northern Engagement: Alaskan Society and Applied Cultural Anthropology, 1973-2003. *Alaska Journal of Anthropology* 3(1):121-155.
5. Wheeler, Polly & Tom Thorton. 2005. Subsistence Research in Alaska: A Thirty Year Retrospective. *Alaska Journal of Anthropology* 3(91)69-103.

B. Recent literature:

1. Benard, Russell H. 2006. Research Methods in Anthropology, 4th edition.

2. Denzin, Norman K., Lincoln Yvonna S. & Linda Tuhiwai Smith. 2008. Handbook of Critical and Indigenous Methodologies.

3. Henry, Lisa & Roxanna Manoochehri. 2010. On Becoming an Applied Anthropologist: Collaboration and Clients in the Classroom. *Practicing Anthropology* 32(2):26-30.

4. US Department of Health, Education, and Wealth. 2010. The Belmont Report: Ethical Principles and Guidelines for the Protection of Human Subjects of Research. http://ohsr.od.nih.gov/guidelines/belmont.html.

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	Anthropology

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
ANTH	A654	N/A	3	(3+0)

6. Complete Course Title
Advanced Culture and Ecology

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 (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/2015 To: Fall/9999

12. ☐ Cross Listed with _____
☒ Stacked with ANTH A454
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. Anthropology MA	10/20/2013	Paul White
2.		
3.		

Initiator Name (typed): Diane K. Hanson Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 10/31/2013
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 10/31/2013

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 anthropological approaches to the relationships between cultural and ecological systems. Culture as an adaptive system and the role of various cultural subsystems in different adaptations. Application of ecological concepts to human societies; impacts of environmental change on human societies, and impacts of human societies on environments; ethnoecology and traditional ecological knowledge of indigenous communities; values of nature among Western and non-Western societies; and political ecology in relation to the juxtaposition of indigenous peoples within contemporary nation-states. Research paper required.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
Anth 202 completed with minimum C grade

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

16c. Other 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 students have need for a course in ecological anthropology that reflects both Western and non-Western (indigenous) approaches to human-environment interaction.

Initiator (faculty only)	Date	☐ Approved ☐ Disapproved	Dean/Director of School/College	Date
Diane K. Hanson 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

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

I. Date of Initiation Date: Fall 2013

II. Course Information

A. College:	College of Arts and Sciences
B. Course Prefix	ANTH
C. Course Number	A654
D. Number of Credits	3
E. Contact Hours	3+0
F. Course Title:	Advanced Studies in Culture and Ecology
G. Grading Basis:	A-F
H. Implementation Date	Spring 2015
I. Course Description:	Advanced anthropological approaches to the relationships between cultural and ecological systems. Culture as an adaptive system and the role of various cultural subsystems in different adaptations. Application of ecological concepts to human societies; impacts of environmental change on human societies, and impacts of human societies on environments; ethnoecology and traditional ecological knowledge of indigenous communities; values of nature among Western and non-Western societies; and political ecology in relation to the juxtaposition of indigenous peoples within contemporary nation-states.
J. Status of Course Relative to a Degree or Certificate Program:	Elective in the MA Anthropology
K. Course Fees:	No
L. Registration Restrictions:	Graduate Standing
M. Stacking	ANTH A454

III. Course Activities

In a lecture and discussion format, information will be presented concerning the diversity of ways in which human societies adapt and have adapted to their natural environments and have transformed those environments, from prehistory to the present, in global perspective.

IV. Course Evaluation

Evaluation procedures are at the discretion of the instructor and will be discussed at the first class meeting of the semester. Students will be evaluated on all class content and assigned readings. Evaluation vehicles will include (but are not limited to) examinations, research papers, student journals/reflections, student questions on readings, and class discussions. The requirement for research papers differentiates the undergraduate (A454) and graduate (A654) versions of this course.

V. Course Justifications:

A. Justification for new course: this course will provide graduate students with information on human-environmental relationships, including key concepts of resilience and sustainability, as well as traditional ecological knowledge and indigenous environmental perspectives, that are critical to graduate education in anthropology

B. Justification for stacking: achieves goal of providing information on human-environmental relationships to graduate students in an efficient delivery vehicle; allows graduate students to mentor undergraduates; will be differentiated by requirement for research papers

VI. Instructional Goals and Defined Outcomes

A. Instructional Goals. The Instructor will:

1. Present fundamental ecological concepts and their relationship to human societies
2. Discuss human adaptations from a variety of cultural perspectives
3. Describe the impacts of environmental changes on human societies, and of human societies on their environments
4. Relate the traditions of environmental anthropology and their perspectives on human/environment interactions
5. Present Western and Non-western (indigenous) perspectives on ecological knowledge

B. Defined Outcomes. The Student will be able to:

1. Apply fundamental ecological concepts to human societies
2. Analyze environmental changes during human prehistory and history, and their impacts on human societies
3. Explain the various traditions in anthropology and their approaches to understanding human/environment interactions Articulate in detail a specific aspect of human-environmental relationships resulting from individual research
4. Interpret different approaches of societies to nature, and the differences and similarities between indigenous environmental knowledge and that of contemporary Western societies

C. Student assessment: based on examinations, research papers, student journals/reflections, daily questions, and class discussion

VII. Topical Outline:

1. History of human ecological thought

2. Application of ecological concepts to human societies: ecosystems and communities; species and populations; niches and habitats; ecotones and boundaries; limiting factors

3. Global environmental change and human societies

4. Concepts of adaptation, resilience, and sustainability as applied to human societies

5. Biomes and energetics

6. Human bioenergetics; human food chains and food webs in ecological perspective; energy flow in human populations; energy and cultural evolution

7. Modeling human resource utilization: bioeconomic optimization models; efficiency and risk in human adaptation; environment and technology; human subsistence patterns in spatiotemporal perspective

8. Ethnoecology, ethnoscience, and ethnotaxonomy

9. Traditional Ecological Knowledge (TEK); cognitive models and decision-making processes of indigenous communities

10. Gender and ecology

11. Human biodemography: human population dynamics, population growth, and population regulation

12. Nutrient cycles and human populations; adaptation and malnutrition

13. Human impact on environments: hunter-gatherers, farmers, urban and industrial societies

14. Cooperation and competition for resources; ecology of territoriality and warfare

15. Human resource management strategies: notions of the commons; resource redistribution, reciprocity, exchange, and trade; storage and conservation of resources

16. Concepts of resilience and sustainability

17. Valuing nature, spiritual and ritual ecology

18. Political ecology of economic “development” and globalization

19. Political ecology and the sustainability of indigenous communities in contemporary nation-states

20. Humans and climate change

21. Environmental ethics and the future of human ecology

Suggested Textbooks:

Dove, M., & Carpenter, C. (2008). *Environmental anthropology: A historical reader.* Malden, MA: Blackwell Pub.

Haenn, N., & Wilk, R. R. (eds.) (2006). *The environment in anthropology: A reader in ecology, culture, and sustainable living*. New York: New York University Press.

Moran, E. F. (2010). *Environmental social science: Human-environment interactions and sustainability*. Wiley-Blackwell.

Sutton, M. Q., & Anderson, E. N. (2013). *Introduction to cultural ecology*, 3rd ed. Walnut Creek, CA: AltaMira Press.

Townsend, P. K. (2009). *Environmental anthropology: From pigs to policies*, 2nd ed. Waveland Press.

VIII. Bibliography:

Argyrou, V. (2005). The logic of environmentalism: Anthropology, ecology, and postcoloniality. New York: Berghahn Books.

Begon, M., Townsend, C. R., & Harper, J. L. (2006). Ecology: From individuals to ecosystems (4th ed.). Malden, MA: Blackwell Pub.

Berkes, Fikret (2012) Sacred Ecology: Traditional Ecological Knowledge and Resource Management, 3rd ed. New York: Routledge.

Bhasin, V., & Susanne, C. (2010). Anthropology today: Trends and scope of human ecology. Delhi: Kamla-Raj Enterprises.

Biersack, A., & Greenberg, J. B. (2006). Reimagining political ecology. Durham: Duke University Press.

Chacon, R. J., & Mendoza, R. G. (2012). The ethics of anthropology and Amerindian research: Reporting on environmental degradation and warfare. New York: Springer.

Crate, S. A., & Nuttall, M. (2009). Anthropology and climate change: From encounters to actions. Walnut Creek, CA: Left Coast Press.

Ellen, R. F. (2007). Modern crises and traditional strategies: Local ecological knowledge in island Southeast Asia. New York: Berghahn Books.

Ellen, R. F., Parkes, P., & Bicker, A. (2000). Indigenous environmental knowledge and its transformations: Critical anthropological perspectives. Amsterdam: Harwood Academic.*

Hastrup, K., & Olwig, K. F. (2012). Climate change and human mobility: Global challenges to the social sciences. New York: Cambridge University Press.

Hastrup, K., & Skrydstrup, M. (2013). The social life of climate change models: Anticipating nature (1st ed.). New York: Routledge.

Heckler, S. (2009). Landscape, process and power: Re-evaluating traditional environmental knowledge. New York: Berghahn Books.

Hornborg, A., & Crumley, C. L. (2007). The world system and the Earth system: Global socioenvironmental change and sustainability since the Neolithic. Walnut Creek, CA: Left Coast Press, Inc.

Ingold, T. (2012). Toward an ecology of materials. Annual Review of Anthropology, 41(1), 427-442. doi: 10.1146/annurev-anthro-081309-145920

Kelly, R. L. (2013). The lifeways of hunter-gatherers: The foraging spectrum (2nd ed.). Cambridge: Cambridge University Press.

Kennett, D. J., & Winterhalder, B. (2006). Behavioral ecology and the transition to agriculture. Berkeley: University of California Press.

Kopnina, H., & Shoreman-Ouimet, E. (2011). Environmental anthropology: Cross-disciplinary investigations. New York: Routledge.

Leonetti, D., Nath, D., & Hemam, N. (2007). The behavioral ecology of family planning. Human Nature, 18(3), 225-241. doi: 10.1007/s12110-007-9010-4

Leslie, P. W., & Little, M. A. (2003). Human biology and ecology: Variation in nature and the nature of variation. American Anthropologist, 105(1), 28-37.*

Lewis, I. M., Höhne, M. V., & Luling, V. (2010). Peace and milk, drought and war: Somali culture, society, and politics: Essays in honour of I.M. Lewis. New York: Columbia University Press.

Lockyer, J., & Veteto, J. R. (2013). Environmental anthropology engaging ecotopia: Bioregionalism, permaculture, and ecovillages. New York: Berghahn Books.

McElroy, A., & Townsend, P. K. (2009). Medical anthropology in ecological perspective (5th ed.). Boulder, CO: Westview Press.

Molnar, S., & Molnar, I. M. (2000). Environmental change and human survival: Some dimensions of human ecology. Upper Saddle River, NJ: Prentice Hall.

Moran, E. F. (2006). People and nature: An introduction to human ecological relations. Malden, MA: Blackwell Pub.

Neumann, R. P. (2011). Political ecology III: Theorizing landscape. Progress in Human Geography, 35(6), 843-850. doi: 10.1177/0309132510390870

Platten, S., & Henfrey, T. (2009). The cultural keystone concept: Insights from ecological anthropology. Human Ecology: An Interdisciplinary Journal, 37(4), 491-500. doi: 10.1007/s10745-009-9237-2

Rappaport, R. A. (1984). Pigs for the ancestors: Ritual in the ecology of a New Guinea people (A new enl. ed.). New Haven: Yale University Press.*

Ray, R. (2005). Adapting to changing environment: Studies in anthropology. Kolkata: University of Calcutta.

Rival, L. (2006). Amazonian historical ecologies. Journal of the Royal Anthropological Institute, 12, 79-94. doi: 10.1111/j.1467-9655.2006.00274.x

Sillitoe, P. (2007). Local science vs. global science: Approaches to indigenous knowledge in international development. New York: Berghahn Books.

Smith, E. A. and Wishnie, M. (2000). Conservation and subsistence in small-scale societies. Annual Review of Anthropology, 29, 493-524.*

Walters, B. B. (2008). Against the grain: The Vayda tradition in human ecology and ecological anthropology. Lanham, MD: Altamira Press.

Wenzel, G. W. (2004). From TEK to IQ: Inuit Qaujimajatuqangit and Inuit cultural ecology. Arctic Anthropology, 41(2), 238-250.

White, R. D. (1985). American environmental history: The development of a new historical field. Pacific Historical Review, 54, 297-335.**

White, R. D. (2004). Controversies in environmental sociology. New York: Cambridge University Press.

Winterhalder, B. (2002). Behavioral and other human ecologies: Critique, response and progress through criticism. Journal of Ecological Anthropology, 6, 4-23.*

*Classic References

**Sources that illustrate historic development of the field

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	Anthropology

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
ANTH	A454	ANTH A354	3	(3+0)

6. Complete Course Title
Culture and Ecology

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 (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/2015 To: Fall1/9999

12. ☐ Cross Listed with _____
☒ Stacked with ANTH A654
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. Integrative Capstone (Tier 3 GER), p. 87 2012-13 catalog	10/31/2013	Faculty List Serv
2. Environment and Society BA/BS, p. 106, 2012-13 catalog	10/31/2013	Dorn Van Dommelen
3.		

Initiator Name (typed): Diane K. Hanson Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 10/31/2013
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 10/31/2013

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)*
Anthropological approaches to the relationships between cultural and ecological systems. Culture as an adaptive system and the role of various cultural subsystems in different adaptations. Application of ecological concepts to human societies; impacts of environmental change on human societies, and impacts of human societies on environments; ethnoecology and traditional ecological knowledge of indigenous communities; values of nature among Western and non-Western societies; and political ecology in relation to the juxtaposition of indigenous peoples within contemporary nation-states.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
ANTH A202 minimum grade of C

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

16c. Other 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
This capstone course has been taught at the advanced undergraduate level for the past several years, and its movement to the 400 level reflects its content level as a capstone course in Anthropology.

Initiator (faculty only)	Date	☐ Approved ☐ Disapproved	Dean/Director of School/College	Date
Diane K. Hanson 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

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

I. Date of Initiation Date: Fall 2013

II. Course Information

A. College:	College of Arts and Sciences
B. Course Prefix	ANTH
C. Course Number	A454
D. Number of Credits	3
E. Contact Hours	3+0
F. Course Title:	Culture and Ecology
G. Grading Basis:	A-F
H. Implementation Date	Spring 2015
I. Course Description:	Anthropological approaches to the relationships between cultural and ecological systems. Culture as an adaptive system and the role of various cultural subsystems in different adaptations. Application of ecological concepts to human societies; impacts of environmental change on human societies, and impacts of human societies on environments; ethnoecology and traditional ecological knowledge of indigenous communities; values of nature among Western and non-Western societies; and political ecology in relation to the juxtaposition of indigenous peoples within contemporary nation-states.
J. Status of Course Relative to a Degree or Certificate Program:	GER Integrative Capstone BA Anthropology capstone BS Anthropology capstone BS Environment and Society, Society and Environment emphasis Minor, Environmental Studies, List B BS Natural Sciences, Environmental Sciences option, Social Sciences list
K. Course Fees:	No
L. Course Prerequisite:	ANTH A202, minimum grade of C
M. Stacking	ANTH A654

III. Course Activities

In a lecture and discussion format, information will be presented concerning the diversity of ways in which human societies adapt and have adapted to their natural environments and have transformed those environments, from prehistory to the present, in global perspective.

IV. Course Evaluation

Evaluation procedures are at the discretion of the instructor and will be discussed at the first class meeting of the semester. Students will be evaluated on all class content and assigned readings. Evaluation vehicles will include (but are not limited to) examinations, student journals/reflections, student questions on readings, and class discussions.

A. Student Learning Outcomes and Assessment Measures

Student Learning Outcomes:	Assessment Measures	Integrative Capstone Goals
1. Apply fundamental ecological concepts to human societies	Examinations, student journals/reflections, grading daily questions and/or class discussion	Knowledge integration, critical thinking
2. Analyze the impacts of environmental change on human societies and the impacts of human societies on environments through human history	Examinations, student journals/reflections, grading daily questions and/or class discussion	Critical thinking, information literacy, knowledge integration,
3. Explain the various traditions in anthropology and their approaches to understanding human/environment interactions	Examinations, student journals/reflections, grading daily questions and/or class discussion	Critical thinking, information literacy, knowledge integration
4. Interpret different approaches of societies to nature, and the differences and similarities between indigenous environmental knowledge and that of contemporary Western societies	Examinations, student journals/reflections, grading daily questions and/or class discussion	Critical thinking, information literacy, knowledge integration

V. Course Justifications:

A. Justification of course level: This course contains advanced content; it is a synthetic course requiring specialized knowledge

B. Justification for capstone status: This course integrates general knowledge about human cultural adaptations to produce a synthetic but detailed understanding of the long-term history of human-environmental relations, including both environmental impacts on human societies and vice versa, as well as an understanding of distinctions between Western and non-Western approaches to ecological knowledge and values of nature, and a consideration of the ecological circumstances of indigenous peoples embedded within contemporary nation-states.

VI. Instructional Goals and Defined Outcomes

A. Instructional Goals. The Instructor will:

1. Present fundamental ecological concepts and their relationship to human societies

2. Discuss human adaptations from a variety of cultural perspectives

3. Describe the impacts of environmental changes on human societies, and of human societies on their environments

4. Relate the traditions of environmental anthropology and their perspectives on human/environment interactions

5. Present Western and non-Western (indigenous) perspectives on ecological knowledge

VII. Topical Outline:

1. History of human ecological thought

2. Application of ecological concepts to human societies: ecosystems and communities; species and populations; niches and habitats; ecotones and boundaries; limiting factors

3. Global environmental change and human societies

4. Concepts of adaptation, resilience, and sustainability as applied to human societies

5. Biomes and energetics

6. Human bioenergetics; human food chains and food webs in ecological perspective; energy flow in human populations; energy and cultural evolution

7. Modeling human resource utilization: bioeconomic optimization models; efficiency and risk in human adaptation; environment and technology; human subsistence patterns in spatiotemporal perspective

8. Ethnoecology, ethnoscience, and ethnotaxonomy

9. Traditional Ecological Knowledge (TEK); cognitive models and decision-making processes of indigenous communities

10. Gender and ecology

11. Human biodemography: human population dynamics, population growth, and population regulation

12. Nutrient cycles and human populations; adaptation and malnutrition

13. Human impact on environments: hunter-gatherers, farmers, urban and industrial societies

14. Cooperation and competition for resources; ecology of territoriality and warfare

15. Human resource management strategies: notions of the commons; resource redistribution, reciprocity, exchange, and trade; storage and conservation of resources

16. Concepts of resilience and sustainability

17. Valuing nature, spiritual and ritual ecology

18. Political ecology of economic "development" and globalization

19. Political ecology and the sustainability of indigenous communities in contemporary nation-states

20. Humans and climate change

21. Environmental ethics and the future of human ecology

VIII. Suggested Textbooks:

Dove, M., & Carpenter, C. (2008). *Environmental anthropology: A historical reader.* Malden, MA: Blackwell Pub.

Haenn, N., & Wilk, R. R. (eds.) (2006). *The environment in anthropology: A reader in ecology, culture, and sustainable living*. New York: New York University Press.

Moran, E. F. (2010). *Environmental social science: Human-environment interactions and sustainability*. Wiley-Blackwell.

Sutton, M. Q., & Anderson, E. N. (2013). *Introduction to cultural ecology*, 3rd ed. Walnut Creek, CA: AltaMira Press.

Townsend, P. K. (2009). *Environmental anthropology: From pigs to policies*, 2nd ed. Waveland Press.

IX. Bibliography:

Argyrou, V. (2005). *The logic of environmentalism: Anthropology, ecology, and postcoloniality*. New York: Berghahn Books.

Begon, M., Townsend, C. R., & Harper, J. L. (2006). *Ecology: From individuals to ecosystems* (4th ed.). Malden, MA: Blackwell Pub.

Berkes, Fikret (2012) *Sacred Ecology: Traditional Ecological Knowledge and Resource Management*, 3rd ed. New York: Routledge.

Bhasin, V., & Susanne, C. (2010). *Anthropology today: Trends and scope of human ecology*. Delhi: Kamla-Raj Enterprises.

Biersack, A., & Greenberg, J. B. (2006). *Reimagining political ecology*. Durham: Duke University Press.

Chacon, R. J., & Mendoza, R. G. (2012). *The ethics of anthropology and Amerindian research: Reporting on environmental degradation and warfare*. New York: Springer.

Crate, S. A., & Nuttall, M. (2009). *Anthropology and climate change: From encounters to actions*. Walnut Creek, CA: Left Coast Press.

Ellen, R. F. (2007). *Modern crises and traditional strategies: Local ecological knowledge in island Southeast Asia*. New York: Berghahn Books.

Ellen, R. F., Parkes, P., & Bicker, A. (2000). *Indigenous environmental knowledge and its transformations: Critical anthropological perspectives*. Amsterdam: Harwood Academic.*

Hastrup, K., & Olwig, K. F. (2012). *Climate change and human mobility: Global challenges to the social sciences*. New York: Cambridge University Press.

Hastrup, K., & Skrydstrup, M. (2013). *The social life of climate change models: Anticipating nature* (1st ed.). New York: Routledge.

Heckler, S. (2009). *Landscape, process and power: Re-evaluating traditional environmental knowledge*. New York: Berghahn Books.

Hornborg, A., & Crumley, C. L. (2007). *The world system and the Earth system: Global socioenvironmental change and sustainability since the Neolithic*. Walnut Creek, CA: Left Coast Press, Inc.

Ingold, T. (2012). Toward an ecology of materials. *Annual Review of Anthropology, 41*(1), 427-442. doi: 10.1146/annurev-anthro-081309-145920

Kelly, R. L. (2013). *The lifeways of hunter-gatherers: The foraging spectrum* (2nd ed.). Cambridge: Cambridge University Press.

Kennett, D. J., & Winterhalder, B. (2006). *Behavioral ecology and the transition to agriculture*. Berkeley: University of California Press.

Kopnina, H., & Shoreman-Ouimet, E. (2011). *Environmental anthropology: Cross-disciplinary investigations*. New York: Routledge.

Leonetti, D., Nath, D., & Hemam, N. (2007). The behavioral ecology of family planning. *Human Nature, 18*(3), 225-241. doi: 10.1007/s12110-007-9010-4

Leslie, P. W., & Little, M. A. (2003). Human biology and ecology: Variation in nature and the nature of variation. *American Anthropologist, 105*(1), 28-37.*

Lewis, I. M., Höhne, M. V., & Luling, V. (2010). *Peace and milk, drought and war: Somali culture, society, and politics: Essays in honour of I.M. Lewis*. New York: Columbia University Press.

Lockyer, J., & Veteto, J. R. (2013). *Environmental anthropology engaging ecotopia: Bioregionalism, permaculture, and ecovillages*. New York: Berghahn Books.

McElroy, A., & Townsend, P. K. (2009). *Medical anthropology in ecological perspective* (5th ed.). Boulder, CO: Westview Press.

Molnar, S., & Molnar, I. M. (2000). *Environmental change and human survival: Some dimensions of human ecology*. Upper Saddle River, NJ: Prentice Hall.

Moran, E. F. (2006). *People and nature: An introduction to human ecological relations*. Malden, MA: Blackwell Pub.

Neumann, R. P. (2011). Political ecology III: Theorizing landscape. *Progress in Human Geography, 35*(6), 843-850. doi: 10.1177/0309132510390870

Platten, S., & Henfrey, T. (2009). The cultural keystone concept: Insights from ecological anthropology. *Human Ecology: An Interdisciplinary Journal, 37*(4), 491-500. doi: 10.1007/s10745-009-9237-2

Rappaport, R. A. (1984). *Pigs for the ancestors: Ritual in the ecology of a New Guinea people* (A new enl. ed.). New Haven: Yale University Press.*

Ray, R. (2005). *Adapting to changing environment: Studies in anthropology*. Kolkata: University of Calcutta.

Rival, L. (2006). Amazonian historical ecologies. *Journal of the Royal Anthropological Institute, 12*, 79-94. doi: 10.1111/j.1467-9655.2006.00274.x

Sillitoe, P. (2007). *Local science vs. global science: Approaches to indigenous knowledge in international development*. New York: Berghahn Books.

Smith, E. A. and Wishnie, M. (2000). Conservation and subsistence in small-scale societies. *Annual Review of Anthropology, 29, 493-524.**

Walters, B. B. (2008). *Against the grain: The Vayda tradition in human ecology and ecological anthropology*. Lanham, MD: Altamira Press.

Wenzel, G. W. (2004). From TEK to IQ: Inuit Qaujimajatuqangit and Inuit cultural ecology. *Arctic Anthropology, 41*(2), 238-250.

White, R. D. (1985). American environmental history: The development of a new historical field. *Pacific Historical Review, 54, 297-335.***

White, R. D. (2004). *Controversies in environmental sociology*. New York: Cambridge University Press.

Winterhalder, B. (2002). Behavioral and other human ecologies: Critique, response and progress through criticism. *Journal of Ecological Anthropology, 6, 4-23.**

*Classic References

**Sources that illustrate historic development of the field

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	Anthropology

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
ANTH	A664	None	3	(3+0)

6. Complete Course Title
Advanced Culture and Globalization

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 (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/2015 To: Fall/9999

12. ☐ Cross Listed with _____
☒ Stacked with ANTH A464
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. Anthropology MA	04/02/2013	Paul White
2.		
3.		

Initiator Name (typed): Marie Lowe Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 04-02-13
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 04-02-13

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 exploration of the relationship between culture and globalization through an examination of global capitalism and ethnographic experiences in the workplace, in the context of transnational migration and diasporas, and through the influence of new information technologies and media on values, beliefs, and practices.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
Anth A202 equivalent completed with minimum of C

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

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

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

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
This class has been taught three times as a selected topics undergraduate course. A permanent, graduate anthropology course is needed to expose students to contemporary ethnographic studies on the relationship between globalization and sociocultural change. This course will provide graduate students with an ethnography course on subject material outside the domain of Alaska/Arctic anthropology.

Initiator (faculty only)	Date	☐ Approved ☐ Disapproved	Dean/Director of School/College	Date
Marie E. Lowe 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

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

I. Initiation Date: March 2013

II. Curriculum Action Request

A. School:	College of Arts and Sciences
B. Course Prefix:	ANTH
C. Course Number:	A664
D. Number of Credits:	3
E. Contact Hours:	3+0
F. Course Program:	MA Anthropology
G. Course Title:	Culture and Globalization
H. Grading Basis:	A-F
I. Implementation Date:	Spring/2015
J. Cross-listed/Stacked:	Stacked with ANTH A464
K. Course Description:	Advanced exploration of the relationship between culture and globalization through an examination of global capitalism and ethnographic experiences in the workplace, in the context of transnational migration and diasporas, and through the influence of new information technologies and media on values, beliefs, and practices.
L. Course Prerequisites:	ANTH A202 equivalent with a minimum grade of C.
M. Course Co-requisites:	N/A
N. Other Restrictions:	Level
O. Registration Restrictions:	Anthropology MA Program Acceptance
P. Course Fees:	Yes

III. Instructional Goals and Student Learning Outcomes

A. The instructor will do the following in class:
   1. Discuss course readings through the use of a discussion guide, position paper, and an emphasis on rhetorical argument skills and Socratic reasoning.
   2. Facilitate student familiarity with cultural dimensions of globalization and modernity through readings and discussion.
   3. Explain and guide students through the research process via step-by-step and semester-long review of the literature, outlining assignments, and writing by way of drafts.
   4. Facilitate the production of a formal piece of academic writing.

B. Student Learning Outcomes and Assessment

Students will be able to:

Student Learning Outcomes	Assessment Procedures
Effectively communicate using rhetorical argument and Socratic reasoning skills.	Graded class discussions.
Apply critical thinking and informed understandings to positions on the history and effects of large drivers of sociocultural change like globalization, what culture is, and the logic of cultural relativism.	Graded class discussions.
Construct a literature review, formulate a research question and argument, locate references, build a bibliography, and write by way of drafts.	Assignments devoted to a step-by-step process for constructing a formal research paper.
Build academic writing skills.	Midterm paper with bibliography expanded to final term paper.

IV. Course Level Justification

This course will build on and refine student understanding of historical processes, cultural diversity, and human adaptation to change introduced in lower division anthropology courses. A permanent master's level course is needed to expose students to contemporary ethnographic studies that investigate and examine the relationship between globalization processes and sociocultural change.

V. Topical Course Outline

A. Introductions: definitions of globalization and culture

1. Overview of course subtopics: Development, Mobility, Media.
2. Globalization as Neoliberalism, Cosmopolitanism and Consumption, the Rise of Fundamentalisms and Nationalisms, and Identity Politics.
3. Argumentation and Reasoning Skills.
4. Literature Review and Library Research Fundamentals.
5. Selection of a research topic.

B. Development, Devolution, Discourse

1. Development theory.
2. Empirical/Ethnographic treatment of capitalism and the modern workplace.
3. Formulation of a research topic thesis statement, bibliography, research paper outline and exposition.

C. Mobility: Migration, Transnationalism, Diasporas

1. Migration theory.
2. Empirical/Ethnographic treatment of migration.
3. Position Paper method to stimulate class discussion.
4. Writing by way of drafts.

D. Media, Technology, and Identity

1. Identity Theory.
2. Media and New Technology Theory.
3. Empirical/Ethnographic treatment of media and identity: media and hegemony; media and resistance.
4. Presentation and Articulation of research topic.

E. Conclusions

Cultural Homogenization vs. Cultural Adaptation.

VI. Suggested Texts

A. Theoretical Foundations:

Ervin, Alexander M. 2015. Cultural Transformations and Globalization: Theory, Development, and Social Change. Boulder, CO: Paradigm. (In Press).

Lewellen, Ted C. 2002. The Anthropology of Globalization: Cultural Anthropology Enters the 21st Century. Westport, CT: Bergin and Garvey. *

Additional Excerpts From:

Appadurai, Arjun. 1996. Modernity at Large: Cultural Dimensions of Globalization. Minneapolis: University of Minnesota Press.*

Graeber, David. 2011. Debt: The First 5,000 Years. New York: Melville House.

Tsing, Anna Lowenhaupt. 2004. Friction: An Ethnography of Global Connections. Princeton: Princeton University Press.

B. Ethnographies/Ethnographic Writings (Instructor will update periodically and **choose three main works** per semester)**:**

Bestor, Theodore C. 2004. Tsukiji: The Fish Market at the Center of the World. Berkeley: University of California Press.

Chavez, Leo. 1998. Shadowed Lives: Undocumented Immigrants in American Society. Crawfordville: Wadsworth. *

Chernoff, John. 2003. Hustling is not Stealing: Stories of an African Bar Girl. Chicago: University of Chicago Press.*

Farrar, James. 2002. Opening Up: Youth, Sex, Culture and Market Reform in Shanghai. Chicago: University of Chicago Press.*

Freeman, Carla. 2000. High Tech and High Heels in the Global Economy: Women, Work and Pink Collar Identities in the Caribbean Durham: Duke University Press.*

Ginsburg, Faye. 2002. "Screen Memories: Resignifying the Traditional in Indigenous Media." In Media Worlds, Ginsburg, Abu-Lughod, and Larkin, eds. Berkeley: University of California Press. Pp. 39-57.*

Hirsch, Jennifer. 2003. A Courtship After Marriage: Sexuality and Love in Mexican Transnational Families. Berkeley: University of California Press. *

Holtzman, Jon D. 2008. Nuer Journeys, Nuer Lives: Sudanese Refugees in Minnesota. Boston: Pearson.

Jordan, Ann T. 2011. The Making of a Modern Kingdom: Globalization and Change in Saudi Arabia. Long Grove, Illinois: Waveland Press.

LaBennett, Oneka. 2011. She's Mad Real: Popular Culture and West Indian Girls in Brooklyn. New York: NYU Press.

Mazzarella, William. 2003. Shoveling Smoke: Advertising and Globalization in Contemporary India. Durham: Duke University Press.*

Ntarangwi, Mwenda. 2009. East African Hip Hop: Youth Culture and Globalization. Champaign, IL: University of Illinois Press.

Mills, Mary Beth. 1999. Thai Women in the Global Labor Force. New Brunswick: Rutgers University Press.*

Ngai, Pun. 2005. Made in China: Women Factory Workers in a Global Workplace. Durham: Duke University Press.*

Pai, Hsiao-Hung. 2012. Scattered Sand: The Story of China's Rural Migrants. Verso: London.

Rudnyckyj, Daromir. 2010. Spiritual Economies: Islam, Globalization, and the Afterlife of Development. Ithaca: Cornell University Press.

Said, Edward. 1997. Covering Islam: How the Media and the Experts Determine How We See the Rest of the World. New York: Vintage.*

Walsh, Andrew. 2012. Made in Madagascar: Sapphires, Ecotourism, and the Global Bazaar. Toronto: University of Toronto Press.

West, Paige. 2012. From Modern Production to Imagined Primitive: The Social World of Coffee from Papua New Guinea. Durham: Duke University Press.

Xiang, Biao. 2007. Global "Body Shopping": An Indian Labor System in the Information Technology Industry. Princeton: Princeton University Press.

C. Videos:

Black, Stephanie. 2001. Life and Debt. *

Flaherty, Robert J. 1922. Nanook of the North. *

Kunuk, Zacharias. 2002. The Fast Runner. (Excerpts in class; full-length on reserve) *

VII. Bibliography and Resources

Cole, Jennifer and Deborah Durham. 2006. Generations and Globalization: Youth, Age, and Family in the New World Economy. Bloomington: Indiana University Press.

Comoroff, John L. and Jean Comoroff. 2009. Ethnicity, Inc. Chicago: University of Chicago Press.

Giddens, Anthony. 2003. Runaway World: How Globalization is Reshaping Our Lives. London: Routledge. *

Barber, Benjamin. 1995. Introduction to *Jihad vs. McWorld*. New York: Times Books.*

Bell, Wendell. 2004. "Humanity's Common Future: Seeking a Positive Future". *The Futurist* 38 (5) (September October 2004): 30-36.

Bucholtz, Mary. 2002. "Youth and Cultural Practice". *Annual Review of Anthropology*, 31:525-52. *

Friedman, Thomas. 2005. The World is Flat. New York: Farrar, Strauss, and Giroux.

Juergensmeyer, Mark 2004 "Holy Orders: Religious Opposition to Modern States". *Harvard International Review*, Winter 2004: 34-38.

Knudson, Tom. 2004. "Shifting the pain: World's resources feed California's growing appetite". *The Sacramento Bee*, April 27, 2003.

Miller, Mark Crispin. 2002. "What's Wrong With This Picture". *The Nation*, January 7-14:333-336. *

Sklair, Leslie. 2004. "Sociology of the Global System". In *The Globalization Reader*, Lechner and Boli, eds. Malden, MA: Blackwell Publishing. Pp. 70-76.

Ramdas, Kavita. 2006. "Feminists and Fundamentalists". *Current History*, 99-104.

Rivoli, Pietra. 2009. The Travels of a T-Shirt in the Global Economy. Hoboken, NJ: Wiley.

Ruthven, Malise. 2007. Fundamentalism: A Very Short Introduction. New York: Oxford University Press.

Schiller, Nina Glick and Thomas Faist. 2010. Migration, Development, and Transnationalization. New York: Berghahn Books.

Snyder, David Pearce 2004 "Five Meta-Trends Changing the World". *The Futurist* Vol. 38, No. 4 , July-August 2004: 22-28.

Stiglitz, Joseph E. 2002 "Globalism's Discontents". *The American Prospect*, 13(1):1-14. *

Vise, David A. 2005 "What Lurks in Its Soul?" *The Washington Post*, November 13, 2005.

Wilson, Chris 2006 "The Century Ahead". *Daedalus*, Winter 2006. Vol. 135, No. 1, Pages 5-8.

*Denotes classic/seminal work

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	Anthropology

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
ANTH	A464	N/A	3	(3+0)

6. Complete Course Title
Culture and Globalization

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 (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 1 Max Credits 3

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

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

12. ☐ Cross Listed with _____
☒ Stacked with ANTH A664
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. Anthropology BA/BS	10-31-12	Steve Langdon
2. International Studies	02-12-13	Dorn Vandommelen
3.		

Initiator Name (typed): Marie Lowe Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 04-02-13
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 04-02-13

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)*
Exploration of the relationship between culture and globalization through an examination of global capitalism and ethnographic experiences in the workplace, in the context of transnational migration and diasporas, and through the influence of new information technologies and media on values, beliefs, and practices.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
ANTH A101 or ANTH A202 or ANTH A250 completed with a minimum grade of C.

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

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

16d. Registration Restriction(s) *(non-codable)*
Junior or Senior Standing

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
The class has been taught three times as a selected topics course. A permanent upper division anthropology course is needed to expose students to contemporary ethnographic studies about the relationship between globalization and sociocultural change. It would fill an ethnography course requirement for dept majors and it is also proposed as a capstone option for ANTH and IS majors.

Initiator (faculty only)	Date	☐ Approved ☐ Disapproved	Dean/Director of School/College	Date
Dr. Marie E. Lowe 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

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

I. Initiation Date: October 2013

II. Curriculum Action Request

A. School:	College of Arts and Sciences
B. Course Prefix:	ANTH
C. Course Number:	A464
D. Number of Credits:	3
E. Contact Hours:	3+0
F. Course Program:	BA/BS Anthropology
G. Course Title:	Culture and Globalization
H. Grading Basis:	A-F
I. Implementation Date:	Spring/2015
J. Cross-listed/Stacked:	Stacked with ANTH A664
K. Course Description:	Exploration of the relationship between culture and globalization through an examination of global capitalism and ethnographic experiences in the workplace, in the context of transnational migration and diasporas, and through the influence of new information technologies and media on values, beliefs, and practices.
L. Course Prerequisites:	ANTH A101 or ANTH A202 or ANTH A250 with a minimum grade of a C.
M. Course Co-requisites:	N/A
N. Other Restrictions:	Class
O. Registration Restrictions:	Completion of all GER Tier 1 (Basic College-Level Skills) courses; Junior or Senior standing
P. Course Fees:	N/A
Q. Course Attributes:	General Education Requirement, Integrative Capstone

III. Instructional Goals and Student Learning Outcomes

A. The instructor will do the following in class:
   1. Discuss course readings with use of discussion guide and with an emphasis on rhetorical argument skills and Socratic reasoning.
   2. Facilitate student familiarity with cultural dimensions of globalization and modernity through readings and discussion.

3. Explain and guide students through the research process via step-by-step and semester-long review of the literature, outlining assignments, and writing by way of drafts.
4. Facilitate the production of a formal piece of academic writing.

B. Student Learning Outcomes and Assessment

Students will be able to:

Student Learning Outcomes	Assessment Procedures	Integrative Capstone Goals
Effectively communicate using rhetorical argument and Socratic reasoning skills.	Graded class discussions.	Effective Communication, knowledge integration, critical thinking.
Apply critical thinking and informed understandings to positions on the history and effects of large drivers of sociocultural change like globalization, what culture is, and the logic of cultural relativism.	Graded class discussions.	Critical thinking, knowledge integration.
Construct a literature review, formulate a research question and argument, locate references, build a bibliography, and write by way of drafts.	Assignments devoted to a step-by-step process for constructing a formal research paper.	Information literacy, knowledge integration, critical thinking.
Build academic writing skills.	Midterm paper with bibliography expanded to final term paper.	Information literacy, knowledge integration, critical thinking.

IV. Course Level Justification

This course will build on and refine student understanding of historical processes, cultural diversity, and human adaptation to change introduced in lower division anthropology courses. As an Integrative Capstone requirement, the course advances the analysis, writing, and presentation skills previously acquired in Tier 1 GER courses and other anthropology courses.

V. Topical Course Outline

A. Introductions: definitions of globalization and culture

1. Overview of course subtopics: Development, Mobility, Media.
2. Globalization as Neoliberalism, Cosmopolitanism and Consumption, the Rise of Fundamentalisms and Nationalisms, and Identity Politics.
3. Argumentation and Reasoning Skills.
4. Literature Review and Library Research Fundamentals.
5. Selection of a research topic.

B. Development, Devolution, Discourse

1. Development theory.
2. Empirical/Ethnographic treatment of capitalism and the modern workplace.
3. Formulation of a research topic thesis statement, bibliography, research paper outline and exposition.

C. Mobility: Migration, Transnationalism, Diasporas

1. Migration theory.
2. Empirical/Ethnographic treatment of migration.
3. Writing by way of drafts.

D. Media, Technology, and Identity

1. Identity Theory.
2. Media and New Technology Theory.
3. Empirical/Ethnographic treatment of media and identity: media and hegemony; media and resistance.
4. Presentation and Articulation of research topic.

E. Conclusions

Cultural Homogenization vs. Cultural Adaptation

VI. Suggested Texts

A. Theoretical Foundations:

Ervin, Alexander M. 2015. Cultural Transformations and Globalization: Theory, Development, and Social Change. Boulder, CO: Paradigm. (In Press).

Lewellen, Ted C. 2002. The Anthropology of Globalization: Cultural Anthropology Enters the 21st Century. Westport, CT: Bergin and Garvey. *

B. Ethnographies/Ethnographic Writings (Instructor will update periodically and **choose three main works** per semester):

Bestor, Theodore C. 2004. Tsukiji: The Fish Market at the Center of the World. Berkeley: University of California Press.

Chavez, Leo. 1998. Shadowed Lives: Undocumented Immigrants in American Society. Crawfordville: Wadsworth. *

Chernoff, John. 2003. Hustling is not Stealing: Stories of an African Bar Girl. Chicago: University of Chicago Press.

Farrar, James. 2002. Opening Up: Youth, Sex, Culture and Market Reform in Shanghai. Chicago: University of Chicago Press.*

Freeman, Carla. 2000. High Tech and High Heels in the Global Economy: Women, Work and Pink Collar Identities in the Caribbean Durham: Duke University Press.*

Ginsburg, Faye. 2002. "Screen Memories: Resignifying the Traditional in Indigenous Media." In Media Worlds, Ginsburg, Abu-Lughod, and Larkin, eds. Berkeley: University of California Press. Pp. 39-57.*

Hirsch, Jennifer. 2003. A Courtship After Marriage: Sexuality and Love in Mexican Transnational Families. Berkeley: University of California Press.

Holtzman, Jon D. 2008. Nuer Journeys, Nuer Lives: Sudanese Refugees in Minnesota. Boston: Pearson.

Jordan, Ann T. 2011. The Making of a Modern Kingdom: Globalization and Change in Saudi Arabia. Long Grove, Illinois: Waveland Press.

LaBennett, Oneka. 2011. She's Mad Real: Popular Culture and West Indian Girls in Brooklyn. New York: NYU Press.

Mazzarella, William. 2003. Shoveling Smoke: Advertising and Globalization in Contemporary India. Durham: Duke University Press.*

Ntarangwi, Mwenda. 2009. East African Hip Hop: Youth Culture and Globalization. Champaign, IL: University of Illinois Press.

Mills, Mary Beth. 1999. Thai Women in the Global Labor Force. New Brunswick: Rutgers University Press.*

Ngai, Pun. 2005. Made in China: Women Factory Workers in a Global Workplace. Durham: Duke University Press.*

Pai, Hsiao-Hung. 2012. Scattered Sand: The Story of China's Rural Migrants. Verso: London.

Rudnyckyj, Daromir. 2010. Spiritual Economies: Islam, Globalization, and the Afterlife of Development. Ithaca: Cornell University Press.

Said, Edward. 1997. Covering Islam: How the Media and the Experts Determine How We See the Rest of the World. New York: Vintage.*

Walsh, Andrew. 2012. Made in Madagascar: Sapphires, Ecotourism, and the Global Bazaar. Toronto: University of Toronto Press.

West, Paige. 2012. From Modern Production to Imagined Primitive: The Social World of Coffee from Papua New Guinea. Durham: Duke University Press.

Xiang, Biao. 2007. Global "Body Shopping": An Indian Labor System in the Information Technology Industry. Princeton: Princeton University Press.

C. Videos:

Black, Stephanie. 2001. Life and Debt. *

Flaherty, Robert J. 1922. Nanook of the North. *

Kunuk, Zacharias. 2002. The Fast Runner. (Excerpts in class; full-length on reserve) *

VII. Bibliography and Resources

Cole, Jennifer and Deborah Durham. 2006. Generations And Globalization: Youth, Age, and Family in the New World Economy. Bloomington: Indiana University Press.

Comoroff, John L. and Jean Comoroff. 2009. Ethnicity, Inc. Chicago: University of Chicago Press.

Giddens, Anthony. 2003. Runaway World: How Globalization is Reshaping Our Lives. London: Routledge. *

Barber, Benjamin. 1995. Introduction to *Jihad vs. McWorld*. New York: Times Books.*

Bell, Wendell. 2004. "Humanity's Common Future: Seeking a Positive Future". *The Futurist* 38 (5) (September October 2004): 30-36.

Bucholtz, Mary. 2002. "Youth and Cultural Practice". *Annual Review of Anthropology*, 31:525-52. *

Friedman, Thomas. 2005. The World is Flat. New York: Farrar, Strauss, and Giroux.

Juergensmeyer, Mark 2004 "Holy Orders: Religious Opposition to Modern States". *Harvard International Review*, Winter 2004: 34-38.

Knudson, Tom. 2004. "Shifting the pain: World's resources feed California's growing appetite". *The Sacramento Bee*, April 27, 2003.

Miller, Mark Crispin. 2002. "What's Wrong With This Picture". *The Nation*, January 7-14:333-336. *

Sklair, Leslie. 2004. "Sociology of the Global System". In *The Globalization Reader*, Lechner and Boli, eds. Malden, MA: Blackwell Publishing. Pp. 70-76.

Ramdas, Kavita. 2006. "Feminists and Fundamentalists". *Current History*, March 2006 99-104.

Rivoli, Pietra. 2009. The Travels of a T-Shirt in the Global Economy. Hoboken, NJ: Wiley.

Ruthven, Malise. 2007. Fundamentalism: A Very Short Introduction. New York: Oxford University Press.

Schiller, Nina Glick and Thomas Faist. 2010. Migration, Development, and Transnationalization. New York: Berghahn Books.

Snyder, David Pearce 2004 "Five Meta-Trends Changing the World". *The Futurist* Vol. 38, No. 4 , July-August 2004: 22-28.

Stiglitz, Joseph E. 2002 "Globalism's Discontents". *The American Prospect*, 13(1):1-14. *

Vise, David A. 2005 “What Lurks in Its Soul?” *The Washington Post*, November 13, 2005.

Wilson, Chris 2006 “The Century Ahead”. *Daedalus*, Winter 2006. Vol. 135, No. 1, Pages 5-8.

*Denotes classic/seminal work

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	Anthropology

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
ANTH	A683	NA	4	(3+2)

6. Complete Course Title
Zooarchaeology

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: Spring/2015 To: Fall/9999

12. ☐ Cross Listed with _____
☒ Stacked with A483 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. MA Anthropology	10/31/2013	Paul White
2.		
3.		

Initiator Name (typed): Diane K. Hanson Initiator Signed Initials: _____ Date: _____

13b. Coordination Email Date: 10/31/2013
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 10/31/2013

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)*
Methods and techniques for, and theoretical approaches to the description, analysis, and interpretation of animal bone assemblages from archaeological sites….Independent research in zooarchaeology involving preparation of comparative osteological materials and/or analysis of an assemblage of archaeological faunal materials.

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
Program consolidation and revision, involving streamlining of course offerings for students. The course materials will be taught on a rotating, as needed basis under Anth A680 Analytical Techniques.

Initiator (faculty only) Date
Diane K. Hanson
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
AS CAS	ASSC Division of Social Science	Anthropology

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
ANTH	A483	NA	4	(3+2)

6. Complete Course Title
Archaeology of Animals

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: Spring/2015 To: Fall/9999

12. ☐ Cross Listed with _____
☒ Stacked with ANTH A683
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. Anthropology BA/BS	10/31/2013	Paul White
2. Anthropology MA	10/31/2013	Paul White
3.		

Initiator Name (typed): Diane K. Hanson Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 10/31/2013
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 10/31/2013

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)*
Methods and techniques for, and theoretical approaches to, the description, analysis, and interpretation of animal bone assemblages from archaeological sites. Inlcudes identification and quantification of animal remains, paleoenvironmental and dietary reconstruction, seasonality of stie occupation, hunting and herding strategies, and the role of animals in the economy and ideology of human societies.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
ANTH A211

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
Program consolidation and revision, involving streamlining of course offerings for students. Content of course will be taught on a rotating basis with other archaeological artifact analyses under A480 Analytical Techniques

Initiator (faculty only) Date
Diane K. Hanson
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
AS CAS	ASSC Division of Social Science	Anthropology

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
ANTH	A685	NA	4	(3+2)

6. Complete Course Title
Advanced Human Osteology

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: Spring/2015 To: Fall/9999

12. ☐ Cross Listed with _____
☒ Stacked with ANTH A485
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. Anthropology MA	10/31/2013	Paul White
2.		
3.		

Initiator Name (typed): Diane K. Hanson Initiator Signed Initials: _____ Date: _____

13b. Coordination Email Date: 10/31/2013
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 10/31/2013

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)*
Methods, techniques, and theoretical approaches to human skeletal identification, description, and analysis. Encompasses principles of growth, development, and remodeling as well as identification of age, sex, and racial attributes, and interpretation of pathological changes in human bone. Lecture and laboratory format.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
ANTH A485

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
Program consolidation and revision, involving streamlining of course offerings for students. Course materials will be taught under new format in new course.

Initiator (faculty only) Date
Diane K. Hanson
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
AS CAS	ASSC Division of Social Science	Anthropology

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
ANTH	A485	NA	4	(3+2)

6. Complete Course Title
Human Osteology

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: Spring/2015 To: Fall/9999

12. ☐ Cross Listed with _____
☒ Stacked with ANTH A685
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. Anth BA/BS	10/31/2013	Paul White
2. Anth MA	10/31/2013	Paul White
3. Pre-Health Sciences Major	10/31/2013	Quentin Reuer

Initiator Name (typed): Diane K. Hanson Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 10/31/2013
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 10/31/2013

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)*
Methods of human skeletal identification, description, and analysis. Includes identification of age and sex attributes. Lecture and laboratory format.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
ANTH A205

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
Program consolidation and revision, involving streamlining of course offerings for students. Content will taught in new format under new course.

Initiator (faculty only) Date
Diane K. Hanson
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
AS CAS	ASSC Division of Social Science	Anthropology

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
ANTH	A686	NA	3	(3+0)

6. Complete Course Title
Advanced Applied Human Osteology

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: Spring/2015 To: Fall/9999

12. ☐ Cross Listed with _____
☒ Stacked with ANTH A486
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. Anthropology MA	10/31/2013	Paul White
2.		
3.		

Initiator Name (typed): Diane K. Hanson Initiator Signed Initials: _____ Date: _____

13b. Coordination Email Date: 10/31/2013
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 10/31/2013

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)*
Methods, techniques, and theory of the applications of human osteology, including paleopathology, bioarchaeology, and forensic anthropology. Includes identification and analysis of age, sex, and population attributes from human skeletal remains, and the methods and theory of statistical interpretation of human skeletal data.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
ANTH A485 or ANTH A685

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
Program consolidation and revision, involving streamlining of course offerings for students. Course content will be taught with new format under different course.

Initiator (faculty only) Date
Diane K. Hanson
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
AS CAS	ASSC Division of Social Science	Anthropology

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
ANTH	A486	NA	3	(3+0)

6. Complete Course Title
Applied Human Osteology

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: Spring/2015 To: Fall/9999

12. ☐ Cross Listed with _____
☒ Stacked with ANTH A686
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. Anthropology BA/BS	10/31/2013	Paul White
2. Anthropology MA	10/31/2013	Paul White
3. Pre-Health Sciences Approved Courses Social Science	10/31/2013	Quentin Reuer

Initiator Name (typed): Diane K. Hanson Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 10/13/31
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 10/31/2013

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)*
Methods and techniques of the applications of human osteology, including paelopathology, bioarchaeology, and forensic anthropology. Includes identification and analysis of age, sex, and population attributes from human skeletal remains.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
ANTH A485

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
Program consolidation and revision, involving streamlining of course offerings for students.

Initiator (faculty only) Date
Diane K. Hanson
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

UAA College of Engineering
UNIVERSITY of ALASKA ANCHORAGE

3211 Providence Dr. Ste. 201
Anchorage, Alaska 99508
P: 907.786.1900 F: 907.786.1079
www.uaa.alaska.edu/schoolofengineering/

March 2, 2014

To: Arlene Schmuland, GAB Chair
Francisco Miranda, UAB Chair

Dear Arlene and Francisco,

The College of Engineering Civil Engineering Department is proposing to change course prefix for its courses in Arctic Engineering Program. The courses have currently a CE prefix (Civil Engineering). This prevents effective analysis of the program growth and proper program assessment. E.g. no data from the university accounting system is available for the Arctic Engineering Program Credit hour production, Enrollment/FTEF, SCH/FTEF, avg. class size and percent of capacity.

Therefore, a new prefix, AE is proposed. This entails updating the CARs and CCGs for the following Arctic Engineering courses:

Change course prefix from CE:

AE A403	Arctic Engineering
AE A603	Arctic Engineering
AE A681	Frozen Ground Engineering
AE A682	Ice Engineering
AE A683	Arctic Hydrology and Hydraulic Engineering
AE A684	Arctic Utility Distribution
AE A685	Arctic Heat and Mass Transfer
AE A689	Cold Regions Pavement Design

Add a new course:

AE A686	Artic Engineering Project

Sincerely,

Hannele Zubeck, PE, Ph.D.,

Professor and Chair, UAA Arctic Engineering Program

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
EN SOENGR	Civil Engineering

2. Complete Program Title/Prefix
Master of Science, Arctic Engineering/AE

3. Type of Program

Choose one from the appropriate drop down menu: Undergraduate: CHOOSE ONE or Graduate: Other: specify type in box 2

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: Spring/2015 To: 99/9999

6a. Coordination with Affected Units Department, School, or College: Civil Engineering

Initiator Name (typed): Hannele Zubeck Initiator Signed Initials: _____
Date:_____

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: 2/4/2014

6c. Coordination with Library Liaison Date: 2/4/2014

7. Title and Program Description - Please attach the following:

☒ Cover Memo ☒ Catalog Copy in Word using the track changes function

8. Justification for Action
We are replacing the CE A686 with AE A686 in the program requirements.

Initiator (faculty only) Date Hannele Zubeck 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

ARCTIC ENGINEERING

Engineering Building (ENGR), Room 201, (907) 786-1900

http://www.uaa.alaska.edu/civilengineering/arctic/The Arctic Engineering program is designed to provide graduate education for engineers who must deal with the unique challenge of design, construction and operations in the cold regions of the world. The special problems created by the climactic, geological and logistical conditions of the Arctic and sub-Arctic require knowledge and techniques not usually covered in the normal engineering courses. Development of petroleum and other natural resources has accentuated the demand for engineers trained in northern operations, both from private industries involved in development and government agencies planning or regulating these activities. Of primary importance is a thorough knowledge of heat transfer processes and properties of frozen ground and frozen water, which are basic to most engineering activities in the Arctic. The areas of hydraulics, hydrology, materials and utility operations are also uniquely affected by Arctic considerations.

Master of Science, Arctic Engineering

The Master of Science of Arctic Engineering requires completion of a set of core courses that will prepare an engineer to understand and adapt prior engineering knowledge and skills to problems of cold regions. The program also allows students to study advanced elective courses in a particular area of specialized interest. Research activities carried out by faculty of the UAA College of Engineering provide opportunities for project reports dealing with current Arctic knowledge. A graduate advisory committee of at least three members is appointed to guide each admitted student to degree completion. Two members must be UAA Arctic Engineering faculty members.

Program Student Learning Outcomes

On successful completion of the program, students will have gained sufficient knowledge to:

1. Recognize natural conditions and engineering challenges that are unique to cold regions;
2. Interpret associated specialized language and units of measure;
3. Locate, interpret, and apply public information about the physical conditions of cold regions;
4. Apply fundamental physical principles for solutions to common cold regions engineering problems;
5. Assess need for complex specialized Arctic engineering solutions;
6. Determine physical and thermal properties, evaluate frost heave rates, and estimate heat flow in soils, prevent foundation failure due to seasonally or perennially frozen ground by appropriate project site exploration and design of constructed features;
7. Determine mathematical and physical properties governing heat and mass transfer in cold climates;
8. Determine temperature profiles in structure walls, roofs, and foundations, predict moisture content and mass flow rates in structures;
9. Acquire, integrate, and interpret data from public archives regarding site conditions associated with planning and design of community utility systems and formulate field measurement programs to determine site conditions for planning and design;
10. Analyze properties of lake, river, and sea ice, predict behavior of ice under natural conditions, and predict ice forces on engineering structures; and
11. Apply the sum of specialized Arctic engineering knowledge and skills gained in the program toward solution of a practical engineering problem and report this to fellow specialists.

Admission Requirements

All students admitted to the Arctic Engineering program must have previously earned a baccalaureate degree in an engineering discipline with a cumulative undergraduate GPA of at least 3.00. Probationary admission may be granted by the Civil Engineering Department for students whose cumulative undergraduate GPA is between 2.50 and 3.00, but who have successfully completed graduate studies at the 3.00 level or better and have other evidence of their potential for success in graduate engineering studies. Probationary terms will typically call for successful completion of a pre-approved sequence of 9 credits of graduate engineering courses. Admitted students are also responsible for completion of prerequisites for Arctic engineering program courses, which may not have been included in their undergraduate education.

Graduation Requirements

See the beginning of this chapter for University Requirements for Graduate Degrees.

Major Requirements

1. Candidates must complete the following core courses (9 credits):

AE A603	Arctic Engineering*	3
AE A681	Frozen Ground Engineering	3
AE A685	Arctic Heat and Mass Transfer	3

**Students who have completed AE/CE A403 Arctic Engineering with a grade of C or better, or students who have passed the ES AC030 Fundamentals of Arctic Engineering or ES AC031 Introduction to Arctic Engineering before being admitted to the program must replace AE A603 with an elective, 3-credit course accepted by the student's graduate advisory committee.*

2. Candidates must also complete at least three additional courses from the following Arctic engineering program elective courses (9 credits): 9

   AE A682 Ice Engineering (3)
   AE A683 Arctic Hydrology and Hydraulic Engineering (3)
   AE A684 Arctic Utility Distribution (3)
   AE A689 Cold Regions Pavement Design (3)

3. Candidates must complete additional graduate electives (9 credits) in mathematical, science or engineering subjects related to or supportive of the student's program of study, as approved by the student's advisory committee to fulfill the minimum 30-credit degree requirement. One technical undergraduate elective course at the 400 level may be applicable with prior permission of the student's advisory committee and provided a grade of B or better is achieved. All coursework applied toward degree requirements must be approved by the student's advisory committee.
4. Each student must complete the following course (3 credits) after approval of a project proposal by the student's advisory committee:

   AE A686 Arctic Engineering Project 3

   The Arctic engineering project should have the following characteristics:
   a. The Arctic engineering project must solve a practical engineering problem to the extent that original developments by the candidate are evident in the project report.
   b. The project problem and solution must be presented in the context of the current state of the art by means of a thorough review of pertinent literature.
   c. The project must include innovative components directly involving cold regions engineering.
   d. The project must have sufficient scope to clearly demonstrate the candidate's advanced technical expertise in cold regions engineering.
   e. The project report must demonstrate command of knowledge and skills directly associated with the candidate's graduate program of study.
   f. The written project report, in the judgment of the candidate's advisory committee, must be publishable in the proceedings of a cold regions engineering specialty conference.
   g. The work must require a level of effort consistent with three semester hours of credit (approximately 45 to 60 hours per credit hour or 135 to 180 hours total effort).
5. A total of 30 credits is required for the degree.

FACULTY

Robert Lang, rjlang@uaa.alaska.edu
T. Bart Quimby, Professor, tbquimby@uaa.alaska.edu
Tom Ravens, Professor, tmravens@uaa.alaska.edu
Orson Smith, Professor, opsmith@uaa.alaska.edu
Zhaohui Yang, Associate Professor, zyang2@uaa.alaska.edu
Hannele Zubeck, Professor/Chair, hkzubeck@uaa.alaska.edu

ARCTIC ENGINEERING

Engineering Building (ENGR), Room 201, (907) 786-1900

~~www.uaa.alaska.edu/schoolofengineering/programs/arctic~~ http://www.uaa.alaska.edu/civilengineering/arctic/

The Arctic Engineering program is designed to provide graduate education for engineers who must deal with the unique challenge of design, construction and operations in the cold regions of the world. The special problems created by the climactic, geological and logistical conditions of the Arctic and sub-Arctic require knowledge and techniques not usually covered in the normal engineering courses. Development of petroleum and other natural resources has accentuated the demand for engineers trained in northern operations, both from private industries involved in development and government agencies planning or regulating these activities. Of primary importance is a thorough knowledge of heat transfer processes and properties of frozen ground and frozen water, which are basic to most engineering activities in the Arctic. The areas of hydraulics, hydrology, materials and utility operations are also uniquely affected by Arctic considerations.

Master of Science, Arctic Engineering

The Master of Science of Arctic Engineering requires completion of a set of core courses that will prepare an engineer to understand and adapt prior engineering knowledge and skills to problems of cold regions. The program also allows students to study advanced elective courses in a particular area of specialized interest. Research activities carried out by faculty of the UAA ~~School of Engineering~~College of Engineering provide opportunities for project reports dealing with current Arctic knowledge. A graduate advisory committee of at least three members is appointed to guide each admitted student to degree completion. Two members must be UAA Arctic Engineering faculty members.

Program Student Learning Outcomes

On successful completion of the program, students will have gained sufficient knowledge to:

1. Recognize natural conditions and engineering challenges that are unique to cold regions;
2. Interpret associated specialized language and units of measure;
3. Locate, interpret, and apply public information about the physical conditions of cold regions;
4. Apply fundamental physical principles for solutions to common cold regions engineering problems;
5. Assess need for complex specialized Arctic engineering solutions;
6. Determine physical and thermal properties, evaluate frost heave rates, and estimate heat flow in soils, prevent foundation failure due to seasonally or perennially frozen ground by appropriate project site exploration and design of constructed features;
7. Determine mathematical and physical properties governing heat and mass transfer in cold climates;
8. Determine temperature profiles in structure walls, roofs, and foundations, predict moisture content and mass flow rates in structures;
9. Acquire, integrate, and interpret data from public archives regarding site conditions associated with planning and design of community utility systems and formulate field measurement programs to determine site conditions for planning and design;
10. Analyze properties of lake, river, and sea ice, predict behavior of ice under natural conditions, and predict ice forces on engineering structures; and
11. Apply the sum of specialized Arctic engineering knowledge and skills gained in the program toward solution of a practical engineering problem and report this to fellow specialists.

Admission Requirements

All students admitted to the Arctic Engineering program must have previously earned a baccalaureate degree in an engineering discipline with a cumulative undergraduate GPA of at least 3.00. Probationary admission may be granted by the Civil Engineering Department for students whose cumulative undergraduate GPA is between 2.50 and 3.00, but who have successfully completed graduate studies at the 3.00 level or better and have other evidence of their potential for success in graduate engineering studies. Probationary terms will typically call for successful completion of a pre-approved sequence of 9 credits of graduate engineering courses. Admitted students are also responsible for completion of prerequisites for Arctic engineering program courses, which may not have been included in their undergraduate education.

Graduation Requirements

See the beginning of this chapter for University Requirements for Graduate Degrees.

Major Requirements

1. Candidates must complete the following core courses (9 credits):

A~~C~~E A603	Arctic Engineering*	3
A~~C~~E A681	Frozen Ground Engineering	3

AME A685 Arctic Heat and Mass Transfer 3

**Students who have completed AE/CE A403 Arctic Engineering with a grade of C or better, or students who have passed the ES AC030 Fundamentals of Arctic Engineering or ES AC031 Introduction to Arctic Engineering before being admitted to the program must replace ACE A603 with an elective, 3-credit course accepted by the student's graduate advisory committee.*

2. Candidates must also complete at least three additional courses from the following Arctic engineering program elective courses (9 credits): 9

ACE A682 Ice Engineering (3)
ACE A683 Arctic Hydrology and Hydraulic Engineering (3)
ACE A684 Arctic Utility Distribution (3)
ACE A689 Cold Regions Pavement Design (3)

3. Candidates must complete additional graduate electives (9 credits) in mathematical, science or engineering subjects related to or supportive of the student's program of study, as approved by the student's advisory committee to fulfill the minimum 30-credit degree requirement. One technical undergraduate elective course at the 400 level may be applicable with prior permission of the student's advisory committee and provided a grade of B or better is achieved. All coursework applied toward degree requirements must be approved by the student's advisory committee.
4. Each student must complete the following course (3 credits) after approval of a project proposal by the student's advisory committee:

ACE A686 ~~Civil~~ Arctic Engineering Project 3

The Arctic engineering project should have the following characteristics:

a. The Arctic engineering project must solve a practical engineering problem to the extent that original developments by the candidate are evident in the project report.
b. The project problem and solution must be presented in the context of the current state of the art by means of a thorough review of pertinent literature.
c. The project must include innovative components directly involving cold regions engineering.
d. The project must have sufficient scope to clearly demonstrate the candidate's advanced technical expertise in cold regions engineering.
e. The project report must demonstrate command of knowledge and skills directly associated with the candidate's graduate program of study.
f. The written project report, in the judgment of the candidate's advisory committee, must be publishable in the proceedings of a cold regions engineering specialty conference.
g. The work must require a level of effort consistent with three semester hours of credit (approximately 45 to 60 hours per credit hour or 135 to 180 hours total effort).

5. A total of 30 credits is required for the degree.

FACULTY

Robert Lang, rjlang@uaa.alaska.edu
T. Bart Quimby, Professor, ~~AFTBQ~~tbquimby@uaa.alaska.edu
Tom Ravens, Professor, ~~AFTMR~~tmravens@uaa.alaska.edu
Orson Smith, Professor, ~~AFOPS~~opsmith@uaa.alaska.edu
Zhaohui Yang, Associate Professor, ~~AFZY~~zyang2@uaa.alaska.edu
Hannele Zubeck, Professor/Chair, ~~AFHKZ~~hkzubeck@uaa.alaska.edu

UAA College of Engineering
UNIVERSITY of ALASKA ANCHORAGE

3211 Providence Dr. Ste. 201
Anchorage, Alaska 99508
P: 907.786.1900 F: 907.786.1079
www.uaa.alaska.edu/schoolofengineering/

March 2, 2014

To: Arlene Schmuland, GAB Chair

Dear Arlene,

The College of Engineering Civil Engineering Department is proposing to change course prefix for its courses in Arctic Engineering Program from CE (Civil Engineering) to AE. We also propose to replace the CE A686 Civil Engineering Project with AE A686 Arctic Engineering Project.

These changes entail updating the CARs and CCGs for the following Arctic Engineering courses:

Change course prefix from CE:

AE A403	Arctic Engineering
AE A603	Arctic Engineering
AE A681	Frozen Ground Engineering
AE A682	Ice Engineering
AE A683	Arctic Hydrology and Hydraulic Engineering
AE A684	Arctic Utility Distribution
AE A685	Arctic Heat and Mass Transfer
AE A689	Cold Regions Pavement Design

Add a new course:

AE A686	Artic Engineering Project

Sincerely,

Hannele Zubeck, PE, Ph.D.,

Professor and Chair, UAA Arctic Engineering Program

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
EN SOENGR	Civil Engineering

2. Complete Program Title/Prefix
Arctic Engineering/AE

3. Type of Program

Choose one from the appropriate drop down menu: Undergraduate: or Graduate:
Other: specify type in box 2
Other: specify type in box 2

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: Spring/2015 To: 99/9999

6a. Coordination with Affected Units Department, School, or College: Civil Engineering

Initiator Name (typed): Hannele Zubeck Initiator Signed Initials: _____
Date:_____

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: 2/4/2014

6c. Coordination with Library Liaison Date: 2/4/2014

7. Title and Program Description - Please attach the following:

☒ Cover Memo ☒ Catalog Copy in Word using the track changes function

8. Justification for Action
For identity and assessment purposes, the key courses in Arctic Engineering Program are being given the Artic Engineering (AE) prefix.

Initiator (faculty only) Date
Hannele Zubeck
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
EN SOENGR	No Division Code	Civil Engineering

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
AE	A603	CE A603	3	(3+0)

6. Complete Course Title
Arctic Engineering
Arctic Engineering
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 (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/2015 To: 99/9999

12. ☐ Cross Listed with _____
☒ Stacked with AE A403
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	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. MS of Arctic Engineering	336	1/24/2014	Hannele Zubeck
2. BS of Engineering, EE/ME	260, 261	12/6/2013	Jeff Hoffman/Jens Munk
3.			

Initiator Name (typed): Hannele Zubeck Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 2/4/2014
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 2/4/2014

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)*
Introduces students to a broad spectrum of engineering challenges unique to cold regions. Discusses physical principles and practical data collection methods, analyses, designs, and construction methods. Students gain a working knowledge of cold regions engineering problems and modern solutions as a basis for more detailed study. Students must submit a research paper.

16a. Course Prerequisite(s) *(list prefix and number)*	16b. Test Score(s)	16c. Co-requisite(s) *(concurrent enrollment required)*
N/A	N/A	N/A

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

16e. Registration Restriction(s) *(non-codable)*
Graduate standing with a bacclaureate degree in engineering. No previous credit for CE/AE A403.

17. ☒ Mark if course has fees Standard Engineering Fee

18. ☐ Mark if course is a selected topic course

19. Justification for Action
For identity and assessment purposes, the key graduate courses of the Arctic Engineering program are being given the Arctic Engineering prefix.

Initiator (faculty only) Date
Hannele Zubeck
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chairperson Date

☐ Approved
☐ Disapproved
Curriculum Committee Chairperson Date

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

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved
Provost or Designee Date

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

I. Initiation Date: February 20, 2014

II. Course Information

A.	College:	College of Engineering
B.	Course Title:	Arctic Engineering
C.	Course Subject/Number:	AE A603
D.	Credit Hours:	3.0
E.	Contact:	3+0
F.	Grading Information:	A-F
G.	Course Description:	Introduces students to a broad spectrum of engineering challenges unique to cold regions. Discusses physical principles and practical data collection methods, analyses, designs, and construction methods. Students gain a working knowledge of cold regions engineering problems and modern solutions as a basis for more detailed study. Students must submit a research paper.
H.	Status of course relative to degree or certificate program:	Applies to the MS program in Arctic Engineering, and BS program in Engineering, with Mechanical and Electrical concentrations.
I.	Lab Fees:	Standard Engineering Fee
J.	Coordination:	UAA/CoEng/CE faculty list serves
K.	Course Prerequisites:	NA
L.	Registration Restrictions:	Graduate standing with a baccalaureate degree in engineering. No previous credit for CE/AE A403.

III. Course Activities

Faculty presentations, homework assignments, exams, class discussions and activities relating to course's term paper conference.

IV. Evaluation

Evaluation procedures are at the discretion of the instructor and will be disclosed during the first class in the semester. Students will be evaluated on homework assignments, exams and term paper.

V. Course Level Justification

Presentations and reading will include advanced scientific and engineering topics that require a background in math and science equivalent to that obtained in a bachelor's degree in engineering.

VI. Course Outline

- Global Perspectives and Climate Change
- Units of Measure and Heat Transfer
- Ice Engineering
- Snow Engineering
- Frozen Ground Engineering
- Arctic Roads
- Arctic Buildings
- Arctic Utilities
- Arctic Construction
- Mechanical and Electrical Engineering Issues in Cold Regions
- Winter Safety and Survival
- Presenting research results

VII. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will
   1. Introduce the students to a variety of Arctic Engineering issues and prepare them for further study in each topic in the course outline.
   2. Provide students with understanding and skills to evaluate the effects of ice, snow and freezing temperatures on the design and construction of arctic buildings and infrastructure.
   3. Provide students with understanding and skills to include climate variation conditions in arctic design.
   4. Provide students with understanding and skills to calculate basic heat transfer and moisture migration in buildings.
   5. Explain how to prepare conference papers.

B. Student Learning Outcomes. After successful completion of the course, the students will be able to:

Student Learning Outcomes	Assessment Procedures
1. Include climate variation considerations in arctic designs.	Homework assignments, exams and term paper.
2. Conduct basic heat transfer calculations with an ability to convert units of measure.	Homework assignments, exams and term paper.
3. Evaluate the effects of ice and snow on arctic infrastructure.	Homework assignments, exams and term paper.
4. Evaluate the effects of ground freezing on foundations and roads.	Homework assignments, exams and term paper.
5. Evaluate the effects of freezing air temperatures and snow on building design.	Homework assignments, exams and term paper.
6. Avoid design failures of arctic utilities due to arctic conditions.	Homework assignments, exams and term paper.

7. Evaluate the effects of arctic conditions on construction, winter safety and survival.	Homework assignments, exams and term paper.
8. Use psychrometric chart and calculate moisture migration in structures.	Homework assignments, exams and term paper.
9. Evaluate the effects of arctic conditions to electrical engineering projects.	Homework assignments, exams and term paper.
10. Author papers acceptable for publication.	Term paper.

VIII. Suggested Text

No suggested text. References are drawn from the professional literature and equivalent online sources of technical information, such as data from the NOAA's National Climatic Data Center and manuals from the ERDC/CRREL USA Corps of Engineers (e.g. 2002. *Engineering and Design: Ice Engineering.* U.S. Army Corps of Engineers Engineer Manual 1110-2-1612.)

IX. Bibliography and Resources

1. AIA Alaska, 2004. *Northern Building Design,* American Institute of Architects, Anchorage, AK.
2. Andersland, O. and Ladanyi, B., 2004. *Frozen Ground Engineering,* 2nd Ed., ASCE Press, Reston, VA.
3. Doré, G. and Zubeck, H., 2009. *Cold Regions Pavement Engineering,* ASCE Press, Reston, VA.
4. Eranti, E., and Lee, G., 2000. *Cold Region Structural Engineering,* McGraw-Hill, New York, NY.
5. Freitag, D. and McFadden, T., 1997. *Introduction to Cold Regions Engineering,* ASCE Press, Reston, VA. [Classic text].
6. *Journal of Cold Regions Engineering,* ASCE Press, Reston, VA.
7. Smith, D. (Editor), 1996. *Cold Regions Utilities Monograph,* 3rd Ed., ASCE Press, Reston, VA. [Classic text].
8. Rice, E., 1996. *Building in the North,* University of Alaska, Fairbanks, AK. [Classic text].

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

1a. School or College	1b. Division	1c. Department
EN SOENGR	No Division Code	Civil Engineering

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
AE	A403	CE A403	3	(3+0)

6. Complete Course Title
Arctic Engineering
Arctic Engineering
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 (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/2015 To: 99/9999

12. ☐ Cross Listed with _____
☒ Stacked with AE A603
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	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. BS of Civil Engineering	254	1/24/2014	Osama Abaza
2. BS of Construction Management	223	2/4/2014	Jeffrey Callahan
3. BS of Engineering, EE/ME	260, 261	12/6/2013	Jens Munk/Jeff Hoffman

Initiator Name (typed): Hannele Zubeck Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 2/4/2014
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 2/4/2014

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)*
Introduces students to a broad spectrum of engineering challenges unique to cold regions. Discusses physical principles and practical data collection methods, analyses, designs, and construction methods. Students gain a working knowledge of cold regions engineering problems and modern solutions as a basis for more detailed study.

16a. Course Prerequisite(s) *(list prefix and number)*	16b. Test Score(s)	16c. Co-requisite(s) *(concurrent enrollment required)*
N/A	N/A	N/A

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

16e. Registration Restriction(s) *(non-codable)*
Junior or senior standing in an accredited undergraduate program in engineering or construction management.

17. ☒ Mark if course has fees Standard Engineering fee

18. ☐ Mark if course is a selected topic course

19. Justification for Action
For identity and assessment purposes, the key graduate courses of the Arctic Engineering program are being given the Arctic Engineering prefix.

Initiator (faculty only) Date
Hannele Zubeck
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chairperson Date

☐ Approved
☐ Disapproved
Curriculum Committee Chairperson Date

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

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved
Provost or Designee Date

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

I. Initiation Date: February 20, 2014

II. Course Information

A.	College:	College of Engineering
B.	Course Title:	Arctic Engineering
C.	Course Subject/Number:	AE A403
D.	Credit Hours:	3.0
E.	Contact:	3+0
F.	Grading Information:	A-F
G.	Course Description:	Introduces students to a broad spectrum of engineering challenges unique to cold regions. Discusses physical principles and practical data collection methods, analyses, designs, and construction methods. Students gain a working knowledge of cold regions engineering problems and modern solutions as a basis for more detailed study.
H.	Status of course relative to degree or certificate program:	Applies to the BS programs in Civil Engineering, Engineering with Mechanical and Electrical Engineering concentrations, and Construction Management.
I.	Lab Fees:	Standard Engineering Fee
J.	Coordination:	UAA/CoEng/CE faculty list serves
K.	Course Prerequisites:	NA
L.	Registration Restrictions:	Junior or senior standing in an accredited undergraduate program in engineering or construction management.

III. Course Activities

Faculty presentations, homework assignments, exams and class discussions.

IV. Evaluation

Evaluation procedures are at the discretion of the instructor and will be disclosed during the first class in the semester. Students will be evaluated on homework assignments and exams.

V. Course Level Justification

Presentations and reading will include advanced scientific and engineering topics that require a background in math and science equivalent to that of upper class standing in engineering or construction management programs.

VI. Course Outline

- Global Perspectives and Climate Change
- Units of Measure and Heat Transfer
- Ice Engineering
- Snow Engineering
- Frozen Ground Engineering
- Arctic Roads
- Arctic Buildings
- Arctic Utilities
- Arctic Construction
- Mechanical and Electrical Engineering Issues in Cold Regions
- Winter Safety and Survival

VII. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will:

1. Introduce the students to a variety of Arctic Engineering issues and prepare them for further study in each topic in the course outline.
2. Provide students with understanding and skills to evaluate the effects of ice, snow and freezing temperatures on the design and construction of arctic buildings and infrastructure.
3. Provide students with understanding and skills to include climate variation conditions in arctic design.
4. Provide students with understanding and skills to calculate basic heat transfer and moisture migration in buildings.

B. Student Learning Outcomes. After successful completion of the course, the students will be able to:

Student Learning Outcomes	Assessment Procedures
1. Include climate variation considerations in arctic designs.	Homework assignments and exams
2. Conduct basic heat transfer calculations with an ability to convert units of measure.	Homework assignments and exams
3. Evaluate the effects of ice and snow on arctic infrastructure.	Homework assignments and exams
4. Evaluate the effects of ground freezing on foundations and roads.	Homework assignments and exams
5. Evaluate the effects of freezing air temperatures and snow on building design.	Homework assignments and exams
6. Avoid design failures of arctic utilities due to arctic conditions.	Homework assignments and exams
7. Evaluate the effects of arctic conditions on construction, winter safety and survival.	Homework assignments and exams
8. Use psychrometric chart and calculate moisture migration in structures.	Homework assignments and exams
9. Evaluate the effects of arctic conditions on electrical engineering projects.	Homework assignments and exams

VIII. Suggested Text

No suggested text. References are drawn from the professional literature and equivalent online sources of technical information, such as data from the NOAA's National Climatic Data Center and manuals from the ERDC/CRREL USA Corps of Engineers (e.g. 2002. *Engineering and Design: Ice Engineering*. U.S. Army Corps of Engineers Engineer Manual 1110-2-1612.)

IX. Bibliography and Resources

1. AIA Alaska, 2004. *Northern Building Design*, American Institute of Architects, Anchorage, AK.
2. Andersland, O. and Ladanyi, B., 2004. *Frozen Ground Engineering*, 2nd Ed., ASCE Press, Reston, VA.
3. Doré, G. and Zubeck, H., 2009. *Cold Regions Pavement Engineering*, ASCE Press, Reston, VA.
4. Eranti, E., and Lee, G., 2000. *Cold Region Structural Engineering*, McGraw-Hill, New York, NY.
5. Freitag, D. and McFadden, T., 1997. *Introduction to Cold Regions Engineering*, ASCE Press, Reston, VA. [Classic text].
6. *Journal of Cold Regions Engineering*, ASCE Press, Reston, VA.
7. Rice, E., 1996. *Building in the North*, University of Alaska, Fairbanks, Alaska. [Classic text].
8. Smith, D., Editor, 1996. *Cold Regions Utilities Monograph*, 3rd Ed., ASCE Press, Reston, VA. [Classic text]

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

1a. School or College	1b. Division	1c. Department
EN SOENGR	No Division Code	Civil Engineering

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
AE	A681	CE A681	3	(3+0)

6. Complete Course Title
Frozen Ground Engineering
Frozen Ground Engineering
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 (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/2015 To: 99/9999

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. MS of Arctic Engineering	336	1/24/2014	Hannele Zubeck
2. MS of Civil Engineering	NA	1/24/2014	Osama Abaza
3.			

Initiator Name (typed): Hannele Zubeck Initiator Signed Initials: _____ Date: _____

13b. Coordination Email Date: 2/4/2014
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 2/4/2014

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)*
Introduces students to physical, thermal and mechanical properties of frozen soils, frost action, heat flow in soils, thaw behavior of frozen ground, foundations in frozen ground, construction ground freezing, pavement design, earthwork, and field investigations for frozen ground.

16a. Course Prerequisite(s) *(list prefix and number)*	16b. Test Score(s)	16c. Co-requisite(s) *(concurrent enrollment required)*
N/A	N/A	N/A

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

16e. Registration Restriction(s) *(non-codable)*
Graduate standing, with a baccalaureate degree in engineering, or upper class standing in an accredited undergraduate program in engineering.

17. ☒ Mark if course has fees CoEng fee

18. ☐ Mark if course is a selected topic course

19. Justification for Action
For identity and assessment purposes, the key graduate courses of the Arctic Engineering program are being given the Arctic Engineering prefix. Prerequisite removal: current prerequisite limits the attendance to Civil Engineers only.

Initiator (faculty only) Date
Hannele Zubeck
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chairperson Date

☐ Approved
☐ Disapproved
Curriculum Committee Chairperson Date

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

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved
Provost or Designee Date

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

I. Initiation Date: February 20, 2014

II. Course Information

A.	College:	College of Engineering
B.	Course Title:	Frozen Ground Engineering
C.	Course Subject/Number:	AE A681
D.	Credit Hours:	3.0
E.	Contact:	3+0
F.	Grading Information:	A-F
G.	Course Description:	Introduces students to physical, thermal and mechanical properties of frozen soils, frost action, heat flow in soils, thaw behavior of frozen ground, foundations in frozen ground, construction ground freezing, pavement design, earthwork, and field investigations for frozen ground.
H.	Status of course relative to degree or certificate program:	Applies to the MS programs in Arctic Engineering.
I.	Lab Fees:	CoEng fee
J.	Coordination:	UAA/CoEng/CE faculty list serves
K.	Course Prerequisites:	NA
L.	Registration Restrictions:	Graduate standing, with a baccalaureate degree in engineering, or upper class standing in an accredited undergraduate program in engineering.

III. Course Activities

Faculty presentations, homework assignments, exams, class discussions and activities relating to course's term paper conference.

IV. Evaluation

Evaluation procedures are at the discretion of the instructor and will be disclosed during the first class in the semester. Students will be evaluated on homework assignments, exams and term paper.

V. Course Level Justification

Presentations and reading will include advanced scientific and engineering topics that require a background in math and science equivalent to that obtained in a bachelor's degree in engineering.

VI. Course Outline

- Introduction to Frozen Ground
- Physical and Thermal Properties of Soils
- Frost Action
- Heat Flow in Soils
- Thaw Behavior of Frozen Ground
- Mechanical Properties of Frozen Soils
- Foundations in Frozen Ground
- Construction Ground Freezing
- Term Paper Conference
- Pavement Design
- Field Investigations and Earthwork
- Presenting research results

VII. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will demonstrate how to
   1. Analyze properties of frozen soils,
   2. Analyze frozen soil's behavior under stress and strain,
   3. Design foundations, earth structures and pavements for frozen ground.
   4. Explain how to prepare conference papers.

B. Student Learning Outcomes. After successful completion of the course, the students will be able to:

Student Learning Outcomes	Assessment Procedures
1. Define frozen ground and describe its characteristics.	Homework assignments, exams, term paper.
2. Assess physical and thermal properties of frozen soils, heat flow and frost heave rates in soils.	Homework assignments, exams, term paper.
3. Analyze thaw weakening of frozen soils and estimate thaw settlement.	Homework assignments, exams, term paper.
4. Determine strength and creep parameters of frozen soils.	Homework assignments, exams, term paper.
5. Prevent foundation/pavement failure due to seasonally frozen ground or permafrost.	Homework assignments, exams, term paper.
6. Identify important issues in earthwork, field investigations, and construction ground freezing project.	Homework assignments, exams, term paper.
7. Author papers acceptable for publication.	Term paper.

VIII. Suggested Text

Andersland, O. and Ladanyi, B., 2004. *Frozen Ground Engineering*, 2nd. Edition, ASCE Press, Reston, VA.

IX. Bibliography and Resources

1. Doré, G. and Zubeck, H., 2009. *Cold Regions Pavement Engineering*, ASCE Press, Reston, VA.
2. Eranti, E., and Lee, G., 2000. *Cold Region Structural Engineering*, McGraw-Hill, New York, NY.
3. Freitag, D. and McFadden, T., 1997. *Introduction to Cold Regions Engineering*, ASCE Press, Reston, VA. [Classic text].
4. *Journal of Cold Regions Engineering*, ASCE Press, Reston, VA.
5. Smith, D. (Editor), 1996. *Cold Regions Utilities Monograph*, 3rd Ed., ASCE Press, Reston, VA. [Classic text].

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

1a. School or College	1b. Division	1c. Department
EN SOENGR	No Division Code	Civil Engineering

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
AE	A682	CE A682	3	(3+0)

6. Complete Course Title
Ice Engineering
Ice Engineering
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 (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/2015 To: 99/9999

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. Arctic Engineering MS Program	337	1/24/2014	Hannele Zubeck
2. Civil Engineering MS Program	NA	1/24/2014	Osama Abaza
3.			

Initiator Name (typed): Hannele Zubeck Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 2/4/2014
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 2/4/2014

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)*
Introduces students to factors governing design of engineering works contending with the presence of ice. Including fundamental ice properties, ice processes, ice navigation and control of ice in channels, structural and non-structural ice control measures, ice jams, bearing capacity of floating ice sheets, ice forces on riverine, and ocean structures.

16a. Course Prerequisite(s) *(list prefix and number)*	16b. Test Score(s)	16c. Co-requisite(s) *(concurrent enrollment required)*
NA	N/A	N/A

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

16e. Registration Restriction(s) *(non-codable)*
Graduate standing, with a baccalaureate degree in engineering, or upper class standing in an accredited undergraduate program in engineering, having completed a mechanics of materials course with a minimum grade of C.

17. ☒ Mark if course has fees CoEng fee

18. ☐ Mark if course is a selected topic course

19. Justification for Action
For identity and assessment purposes, the key graduate courses of the Arctic Engineering program are being given the Arctic Engineering prefix.

Initiator (faculty only) Date
Hannele Zubeck
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chairperson Date

☐ Approved
☐ Disapproved
Curriculum Committee Chairperson Date

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

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved
Provost or Designee Date

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

I. Initiation Date: February 20, 2014

II. Course Information

A.	College:	College of Engineering
B.	Course Title:	Ice Engineering
C.	Course Subject/Number:	AE A682
D.	Credit Hours:	3.0
E.	Contact:	3+0
F.	Grading Information:	A-F
G.	Course Description:	Introduces students to factors governing design of engineering works contending with the presence of ice. Including fundamental ice properties, ice processes, ice navigation and control of ice in channels, structural and non-structural ice control measures, ice jams, bearing capacity of floating ice sheets, ice forces on riverine, and ocean structures.
H.	Status of course relative to degree or certificate program:	Applies to the MS program in Arctic Engineering.
I.	Lab Fees:	CoEng fee
J.	Coordination:	UAA/CoEng/CE faculty list serves
K.	Course Prerequisites:	None
L.	Registration Restrictions:	Graduate standing, with a baccalaureate degree in engineering, or upper class standing in an accredited undergraduate program in engineering, having completed a mechanics of materials course with a minimum grade of C.

III. Course Activities

Faculty presentations, homework assignments, exams, class discussions and activities relating to course's term paper conference.

IV. Evaluation

Evaluation procedures are at the discretion of the instructor and will be disclosed during the first class in the semester. Students will be evaluated on homework assignments, exams and term paper.

V. Course Level Justification

Presentations and reading will include advanced scientific and engineering topics that require a background in math and science equivalent to that obtained in a bachelor's degree in engineering.

VI. Course Outline

A. Physical Ice Properties and Processes
B. River, Lake, and Sea Ice
C. Ice Navigation and Control of Ice in Channels
D. Structural and Non-structural Ice control Measures
E. Ice Jam Processes and Classification
F. Ice Jam Data Collection, Hydraulics, and Mitigation
G. Bearing Capacity of Floating Ice Sheets
H. Ice Forces on Structures and Related Processes
I. Construction of Ice Roads and Bridges
J. Presenting research results

VII. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will present materials, lead discussions, and assign exercises intended to give students ability to
   1. Analyze properties of lake, river, and sea ice.
   2. Predict behavior of ice under natural conditions.
   3. Evaluate ice forces on engineering structures.
   4. Design ice roads and bridges.
   5. Evaluate bearing capacity of ice sheets.
   6. Predict other ice effects pertinent to safety and efficiency of human endeavors in cold regions.
   7. Explain how to prepare conference papers.

B. Student Learning Outcomes. After successful completion of the course, the students will be able to:

Student Learning Outcomes	Assessment Procedures
1. Analyze properties of lake, river, and sea ice.	Homework assignments, exams and term paper.
2. Predict behavior of ice under natural conditions.	Homework assignments, exams and term paper.
3. Predict ice forces on engineering structures.	Homework assignments, exams and term paper.
4. Design ice roads and bridges.	Homework assignments, exams and term paper.
5. Evaluate bearing capacity of ice sheets.	Homework assignments, exams and term paper.
6. Design ice control and ice jam mitigation measures.	Homework assignments, exams and term paper.
7. Predict other ice effects pertinent to safety and efficiency of human endeavors in cold regions.	Homework assignments, exams and term paper.
8. Author papers acceptable for publication.	Term paper.

VIII. Suggested Text:

USACE, 2002. *Ice Engineering*, EM 1110-2-1612, US Army Corps of Engineers, Washington, DC.

IX. Bibliography and Resources

1. ANSVAPI, 1993. *Recommended Practice for Planning, Designing, and Constructing Fixed Offshore Structures in Ice Environments*, American National Standards Institute/ American Petroleum Institute, Washington, DC. [Classic text].
2. Ashton, G. D., Editor, 1986. *River and Lake Ice Engineering*, Water Resources Publications, Littleton, CO. [Classic text].
3. Eranti, E., and Lee, G., 2000. *Cold Region Structural Engineering*, McGrawHill, New York, NY.
4. McFadden, T., and Bennett, F., 1991. *Construction in Cold Regions- A Guide for Planners, Engineers, Contractors, and Managers*, John Wiley & Sons, Inc., Hoboken, NJ. [Classic text].
5. Ryan, W., and Crissman, R., 1990. *Cold Regions Hydrology and Hydraulics*, ASCE Press, Reston, VA. [Classic text].

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

1a. School or College	1b. Division	1c. Department
EN SOENGR	No Division Code	Civil Engineering

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
AE	A683	CE A683	3	(3+0)

6. Complete Course Title
Arctic Hydrology and Hydraulic Enginering
Arctic Hydrology/Hydraulic Eng
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 (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/2015 To: 99/9999

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. Arctic Engineering MS Program	337	1/24/2014	Hannele Zubeck
2. AEST MS Program	335	1/24/2014	Rob Lang
3.			

Initiator Name (typed): Hannele Zubeck Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 2/4/2014
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 2/4/2014

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)*
Introduces students to aspects of hydrology and hydraulics unique to engineering problems of the North. Although emphasis is placed on Alaskan conditions, information from Canada and other circumpolar countries is included.

16a. Course Prerequisite(s) *(list prefix and number)*	16b. Test Score(s)	16c. Co-requisite(s) *(concurrent enrollment required)*
NA	N/A	N/A

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

16e. Registration Restriction(s) *(non-codable)*
Graduate standing, with a baccalaureate degree in engineering or physical science, or upper class standing in an accredited undergraduate program in engineering, having completed a water resources course with a minimum grade of C.

17. ☒ Mark if course has fees SCoEng fee

18. ☐ Mark if course is a selected topic course

19. Justification for Action
For identity and assessment purposes, the key graduate courses of the Arctic Engineering program are being given the Arctic Engineering prefix.

Initiator (faculty only) Date
Hannele Zubeck
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

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

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

I. Initiation Date: February 20, 2014

II. Course Information

A.	College:	College of Engineering
B.	Course Title:	Arctic Hydrology and Hydraulic Engineering
C.	Course Subject/Number:	AE A683
D.	Credit Hours:	3.0
E.	Contact Time:	3+0
F.	Grading Information:	A-F
G.	Course Description:	Introduces students to aspects of hydrology and hydraulics unique to engineering problems of the North. Although emphasis is placed on Alaskan conditions, information from Canada and other circumpolar countries is included.
H.	Status of course relative to degree or certificate program:	Applies to in Arctic Engineering MS program and Applied Environmental Science and Technology MS program.
I.	Lab Fees:	CoEng fee
J.	Coordination:	UAA/CoEng/CE faculty list serves
K.	Course Prerequisites:	NA
L.	Registration Restrictions:	Graduate standing, with a baccalaureate degree in engineering or physical science, or upper class standing in an accredited undergraduate program in engineering, having completed a water resources course with a minimum grade of C.

III. Course Activities

Faculty presentations, homework assignments, exams, class discussions and activities relating to course's term paper conference.

IV. Evaluation

Evaluation procedures are at the discretion of the instructor and will be disclosed during the first class in the semester. Students will be evaluated on homework assignments, exams and term paper.

V. Course Level Justification

Presentations and reading will include advanced scientific and engineering topics that require a background in math and science equivalent to that obtained in a bachelor's degree in engineering.

VI. Outline

A. Review
    1. Units of measure, static fluid behavior, and basics of fluid flow
    2. Principles of dynamic fluid behavior and fundamentals of open channel flow
    3. Fundamentals of hydrology and river hydraulics
B. Ice in hydrologic and hydraulic systems
    1. Ice formation in turbulent and quiescent water
    2. Evolution of river ice
    3. River ice jams overview
    4. Ice jam force balance
C. Modeling river flows with ice effects
    1. Use of the U.S. Army Corps of Engineers Hydrologic Engineering Center's River Analysis System program (HEC-RAS) to model river flows with ice of known thickness and roughness
    2. Using HEC-RAS for wide rivers with ice jams
    3. Using HEC-RAS to estimate ice jam flood levels
D. Effects of snow on Arctic Hydrology
    1. Snow properties
    2. Snowmelt hydrology

VII. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will demonstrate how to
    1. Employ hydrology and hydraulics fundamentals and related physical principles in cold regions.
    2. Consider cold regions natural conditions and engineering challenges, with particular regard to lakes and streams of the north
    3. Use associated specialized language and units of measure.
    4. Locate, interpret, and apply public information about cold regions precipitation, streamflow, and related physical conditions.
    5. Apply fundamental principles to solve common cold regions hydraulic engineering problems.
    6. Explain how to prepare conference papers.

B. Student Learning Outcomes. Upon completion of the course, the students will be able to:

Student Learning Outcomes	Assessment Procedures
1. Recognize natural conditions and engineering challenges that are unique to rivers and streams in cold regions.	Homework assignments, exams and term paper.
2. Interpret associated specialized language and units of measure.	Homework assignments, exams and term paper.
3. Locate, interpret, and apply public information about cold regions hydrology and related physical conditions.	Homework assignments, exams and term paper.
4. Apply physical principles for specialized solutions to cold regions hydraulic engineering problems, including: a. Prediction of river ice growth and decay, b. Analysis of river ice hydraulics, c. Prediction of ice jams and design of mitigation measures, d. Simulation of river flow and water level changes, including effects of ice, using HEC-RAS, and e. Prediction and analysis of snow properties and snowmelt effects on stream flow.	Homework assignments, exams and term paper.
5. Author papers acceptable for publication.	Term paper.

VIII. Suggested Text

Although no text is required, students are encouraged to download the following free manual from the U.S. Army Corps of Engineers:

US Army Corps of Engineers, 2002. *Ice Engineering*, EM 1110-2-1612, Washington, DC.

IX. Bibliography and Resources

1. Bedient, P., Huber, W., Vieux, B., 2013. *Hydrology and Floodplain Analysis*, Fifth Edition, Pearson, Upper Saddle River, NJ.
2. Chin,D., 2013. *Water Resources Engineering*, Third Edition, Pearson, Upper Saddle River, NJ.
3. DeWalle, D., and Rango, A., 2008. *Principles of Snow Hydrology*, Cambridge University Press, Cambridge, England.
4. Ryan W., and Crissman, R., 1990. *Cold Regions Hydrology and Hydraulics*, ASCE, Reston, VA. [Classic text].
5. Todd D., and Mays, L., 2005. *Groundwater Hydrology*, Third Edition, John Wiley & Sons, Inc., 2005, Hoboken, NJ.
6. US Army Corps of Engineers, 1998. *Runoff from Snowmelt*, EM 1110-2-1406, Washington, DC. [Classic text].

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

1a. School or College	1b. Division	1c. Department
EN SOENGR	No Division Code	Civil Engineering

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
AE	A684	CE A684	3	(3+0)

6. Complete Course Title
Arctic Utility Distribution
Arctic Utility Distribution
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 (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/2015 To: 99/9999

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. Arctic Engineering MS Program	337	1/24/2014	Hannele Zubeck
2. Civil Engineering MS Program	NA	1/24/2014	Osama Abaza
3.			

Initiator Name (typed): Hannele Zubeck Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 2/4/2014
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 2/4/2014

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)*
Introduces students to physical principles and current practices associated with the planning and design of safe, efficient, and affordable water supply, fire protection, wastewater collection and disposal, and solid waste disposal works in cold regions, with a view toward conditions in rural Arctic Alaska.

16a. Course Prerequisite(s) *(list prefix and number)*	16b. Test Score(s)	16c. Co-requisite(s) *(concurrent enrollment required)*
NA	N/A	N/A

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

16e. Registration Restriction(s) *(non-codable)*
Graduate standing, with a baccalaureate degree in engineering or physical science, or upper class standing in an accredited undergraduate program in engineering, having completed a water resources course with a minimum grade of C.

17. ☒ Mark if course has fees SCoEng

18. ☐ Mark if course is a selected topic course

19. Justification for Action
For identity and assessment purposes, the key graduate courses of the Arctic Engineering program are being given the Arctic Engineering prefix.

Initiator (faculty only) Date
Hannele Zubeck
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chairperson Date

☐ Approved
☐ Disapproved
Curriculum Committee Chairperson Date

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

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved
Provost or Designee Date

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

I. Initiation Date: February 20, 2014

II. Course Information

A.	College:	College of Engineering
B.	Course Title:	Arctic Utility Distribution
C.	Course Subject/Number:	AE A684
D.	Credit Hours:	3.0
E.	Contact:	3+0
F.	Grading Information:	A-F
G.	Course Description:	Introduces students to physical principles and current practices associated with the planning and design of safe, efficient, and affordable water supply, fire protection, wastewater collection and disposal, and solid waste disposal works in cold regions, with a view toward conditions in rural Arctic Alaska.
H.	Status of course relative to degree or certificate program:	Applies to the MS programs in Arctic Engineering
I.	Lab Fees:	CoEng fee
J.	Coordination:	UAA/CoEng/CE faculty list serves
K.	Course Prerequisites:	NA
L.	Registration Restrictions:	Graduate standing, with a baccalaureate degree in engineering, or upper class standing in an accredited undergraduate program in engineering, having completed a water resources course with a minimum grade of C.

III. Course Activities

Faculty presentations, homework assignments, exams, class discussions and activities relating to course's term paper conference.

IV. Evaluation

Evaluation procedures are at the discretion of the instructor and will be disclosed during the first class in the semester. Students will be evaluated on homework assignments, exams and term paper.

V. Course Level Justification

Presentations and reading will include advanced scientific and engineering topics that require a background in math and science equivalent to that obtained in a bachelor's degree in engineering.

VI. Course Outline

A. Overview of Cold Regions Utilities
B. Planning and Project Development
C. Frozen Ground – Foundations for Utilities
D. Thermal Considerations
E. Water Sources and Development
F. Water Treatment
G. Water Storage
H. Water Distribution
I. Wastewater Collection, Treatment and Disposal
J. Presenting research results

VII. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. Instructors will present materials, lead discussions, and assign exercises to teach students how to
    1. Plan and design safe, efficient, and affordable water supply, fire protection, wastewater collection and disposal, and solid waste disposal methods in cold regions.
    2. Prepare conference papers.

B. Student Learning Outcomes. After successful completion of the course, the students will be able to:

Student Learning Outcomes	Assessment Procedures
1. Use physical properties, mathematics, analytical methods and specialized language necessary for solving water and wastewater system design and analysis problems encountered in cold regions.	Homework assignments, exams and term paper.
2. Identify and summarize governing processes associated with freezing and thawing phenomena.	Homework assignments, exams and term paper.
3. Locate, interpret, and apply public information about cold regions physical conditions and engineering variables.	Homework assignments, exams and term paper.
4. Determine foundation and support conditions and common designs for water and wastewater infrastructure, including piles, post and pad, and frozen foundation designs.	Homework assignments, exams and term paper.
5. Author papers acceptable for publication.	Term paper.

VIII. Suggested Text:

Smith, D. (Editor), 1996. *Cold Regions Utilities Monograph* [3rd Ed.]. ASCE Press, Reston, VA. [Classic text].

IX. Bibliography and Resources

1. Doré, G. and Zubeck, H., 2009. *Cold Regions Pavement Engineering*, ASCE Press, Reston, VA.
2. Eranti, E., and Lee, G., 2000. *Cold Region Structural Engineering*, McGrawHill, New York, NY.
3. *Journal of Cold Region Engineering*, ASCE Press, Reston, VA.
4. McFadden, T., and Bennett, F., 1991. *Construction in Cold Regions*- A Guide for Planners, Engineers, Contractors, and Managers, John Wiley & Sons, Inc., Hoboken, NJ. [Classic text].
5. Ryan, W., and Crissman, R., 1990. *Cold Regions Hydrology and Hydraulics*, ASCE Press, Reston, VA. [Classic text].

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

1a. School or College	1b. Division	1c. Department
EN SOENGR	No Division Code	Civil Engineering

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
AE	A685	ME A685	3	(3+0)

6. Complete Course Title
Arctic Mass and Heat Transfer
Arctic Mass and Heat Transfer
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/2015 To: 99/9999

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. Arctic Engineering MS Program	336	1/24/2014	Hannele Zubeck
2. Engineering BS Program ME	261	12/6/2013	Jeff Hoffman
3.			

Initiator Name (typed): Hannele Zubeck Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 2/4/2014
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 2/4/2014

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)*
Introduces principles of heat and mass transfer with special emphasis on application to problems encountered in the Arctic, such as ice and frost formation, permafrost, condensation, and heat loss in structures.

16a. Course Prerequisite(s) *(list prefix and number)*	16b. Test Score(s)	16c. Co-requisite(s) *(concurrent enrollment required)*
NA	N/A	N/A

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

16e. Registration Restriction(s) *(non-codable)*
Graduate standing, with a baccalaureate degree in engineering, or upper class standing in an accredited undergraduate program in engineering, having completed a thermodynamics course with a minimum grade of C.

17. ☒ Mark if course has fees CoEng fee

18. ☐ Mark if course is a selected topic course

19. Justification for Action
For identity and assessment purposes, the key graduate courses of the Arctic Engineering program are being given the Arctic Engineering prefix.

Initiator (faculty only) Date
Hannele Zubeck
Initiator (TYPE NAME)

☐ Approved ☐ Disapproved Department Chairperson Date

☐ Approved ☐ Disapproved Curriculum Committee Chairperson Date

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

☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved ☐ Disapproved Provost or Designee Date

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

I. Initiation Date: February 20, 2014

II. Course Information

A.	College:	College of Engineering
B.	Course Title:	Arctic Heat and Mass Transfer
C.	Course Subject/Number:	AE A685
D.	Credit Hours:	3.0
E.	Contact Time:	3+0
F.	Grading Information:	A-F
G.	Course Description:	Introduces principles of heat and mass transfer with special emphasis on application to problems encountered in the Arctic, such as ice and frost formation, permafrost, condensation, and heat loss in structures.
H.	Status of course relative to degree or certificate program:	Applies to the Arctic Engineering MS program and Engineering BS program in Mechanical Engineering concentration.
I.	Lab Fees:	CoEng fee
J.	Coordination:	UAA/SOE/CE faculty list serves
K.	Course Prerequisites:	NA
L.	Registration Restrictions:	Graduate standing, with a baccalaureate degree in engineering, or upper class standing in an accredited undergraduate program in engineering, having completed a thermodynamics course with a minimum grade of C.

III. Course Activities

Faculty presentations, homework assignments, exams, class discussions and activities relating to course's term paper conference.

IV. Evaluation

Evaluation procedures are at the discretion of the instructor and will be disclosed during the first class in the semester. Students will be evaluated on homework assignments, exams and term paper.

V. Course Level Justification

Presentations and reading will include advanced scientific and engineering topics that require a background in math and science equivalent to that obtained in a bachelor's degree in engineering.

VI. Outline

A. Information collection
B. Regional temperature data
C. Physical properties of construction materials
D. Zone refining
E. Fundamentals of heat transfer
F. Temperature distribution in soils
G. Temperature measurement
H. Foundation design in cold regions
I. Heat transfer in structures
J. Heat and mass transfer in buried pipelines, roads, and utilidors
K. Presenting research results

VII. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will demonstrate how to:
1. Apply hydrology and hydraulics fundamentals and related physical principles.
2. Apply physical properties, mathematics including calculus, and analytical methods necessary for solving heat and mass transfer problems encountered in cold regions.
3. Identify governing processes associated with freezing and thawing phenomena in cold regions.
4. Use specialized language and units of measure for heat and mass transfer in cold climates.
5. Locate, interpret, and apply public information about cold regions physical conditions and engineering.
6. Apply governing principles to solve common cold regions engineering problems,
7. Apply heat and mass transfer problem solving techniques to analyze roads, buildings, pipelines, and utilidors under cold climate conditions.
8. Prepare conference papers.

B. Student Learning Outcomes. After successful completion of the course, the students will be able to:

Student Learning Outcomes	Assessment Procedures
1. Determine and summarize the mathematical and physical properties governing heat and mass transfer in cold climates.	Homework assignments, exams and term paper.
2. Interpret and apply associated specialized language and units of measure.	Homework assignments, exams and term paper.
3. Gather specialized scientific and engineering public information about cold regions physical conditions.	Homework assignments, exams and term paper.
4. Apply fundamental physical principles in solving common cold regions engineering problems.	Homework assignments, exams and term paper.
5. Predict temperature variations in soils based upon	Homework assignments, exams and

climatic and physical soil data.	term paper.
6. Determine temperature profiles in structure walls, roof, and foundations.	Homework assignments, exams and term paper.
7. Predict moisture content and mass flow rates in structures.	Homework assignments, exams and term paper.
8. Determine soil freeze and thaw rates associated with buried pipelines and utilidors.	Homework assignments, exams and term paper.
9. Author papers acceptable for publication.	Term paper.

VIII. Suggested Text

Freitag D., and McFadden, T., 1997. *Introduction to Cold Regions Engineering*, ASCE Press, Reston, VA.

Additional supplemental material will be gathered as needed from public information sources, such as data from the NOAA's National Climatic Data Center.

IX. Bibliography and Resources

1. Andersland, O., and Ladanyi, B., 2004. *Frozen Ground Engineering*, 2nd. Ed. ASCE Press, Reston, VA.
2. Cengel, Y., and Boles, M., 1998. *Thermodynamics*, McGraw-Hill, New York, NY.
3. Eranti, E., and Lee, G., 2000. *Cold Region Structural Engineering*, McGraw-Hill, New York, NY.
4. Holman, J., 2002. *Heat Transfer*, McGraw-Hill, New York, NY.
5. Incropera, F., and DeWitt, D., 1996. *Heat and Mass Transfer*, John-Wiley and Sons, Hoboken, NJ. [Classic tex].
6. Lunardini, V., 1981. *Heat Transfer in Cold Climates*, Van Nostrand Reinhold, New York, NY. [Classic text].
7. McFadden, T., and Bennett, F., 1991. *Construction in Cold Regions - A Guide for Planners, Engineers, Contractors, and Managers*, John Wiley & Sons, Inc., Hobeken, NJ. [Classic text].
8. Rice, E., 1996. *Building in the North*, University of Alaska, Fairbanks, Alaska.
9. Smith, D., (Editor), 1996. *Cold Regions Utilities Monograph*, 3rd Ed., ASCE Press, Reston, VA. [Classic text].

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

1a. School or College	1b. Division	1c. Department
EN SOENGR	No Division Code	Civil Engineering

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
AE	A686		3	(0+9)

6. Complete Course Title
Arctic Engineering Project
Arctic Engineering Project
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 (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 3

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Spring/2015 To: 99/9999

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. MS in Arctic Engineering	337	1/24/2014	Hannele Zubeck
2.			
3.			

Initiator Name (typed): Hannele Zubeck Initiator Signed Initials: _____ Date: _____

13b. Coordination Email Date: 2/4/2014
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 2/4/2014

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)*
Culminating project for MS Arctic Engineering student. The project is arranged among the advisor, graduate advisory committee and student to solve a practical cold regions engineering problem.

16a. Course Prerequisite(s) *(list prefix and number)*	16b. Test Score(s)	16c. Co-requisite(s) *(concurrent enrollment required)*
N/A	N/A	N/A

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

16e. Registration Restriction(s) *(non-codable)*
Graduate standing in Arctic Engineering with a completion of minimum of 9 graduate Arctic Engineering credits.

17. ☒ Mark if course has fees CoEng fee

18. ☐ Mark if course is a selected topic course

19. Justification for Action
For identity and assessment purposes, the key graduate courses of the Arctic Engineering program are being given the Arctic Engineering prefix. This course is added, since the students are currently taking CE A686 Civil Engineering Project.

Initiator (faculty only) Date
Hannele Zubeck
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

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

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

I. Initiation Date: February 20, 2014

II. Course Information

A.	College:	College of Engineering
B.	Course Title:	Arctic Engineering Project
C.	Course Subject/Number:	AE A686
D.	Credit Hours:	3.0
E.	Contact:	0+9
F.	Grading Information:	A-F
G.	Course Description:	Culminating project for MS Arctic Engineering student. The project is arranged among the advisor, graduate advisory committee and student to solve a practical cold regions engineering problem.
H.	Status of course relative to degree or certificate program:	Applies to the MS program in Arctic Engineering
I.	Lab Fees:	CoEng fee
J.	Coordination:	UAA/CoEng/CE faculty list serves
K.	Course Prerequisites:	NA
L.	Registration Restrictions:	Graduate standing in Arctic Engineering with a completion of minimum of 9 graduate Arctic Engineering credits.

III. Course Activities

A. Weekly work includes conducting literature review, designing experiments (if applicable), describing methodology (if applicable), conducting experiments or conducting modeling (if applicable), analyzing results, formulating conclusions, providing recommendations for future research and implementation.
B. Student project proposal that is reviewed by the graduate advisory committee.
C. Student project report that is reviewed by the graduate advisory committee.
D. Student project report with incorporated edits/comments from the graduate advisory committee.

IV. Evaluation

Evaluation procedures are at the discretion of the instructor and will be disclosed during the first class in the semester. Students will be evaluated on project proposal and project report.

V. Course Level Justification

A. The course will involve application of engineering and scientific knowledge and skills typical of graduate engineering students.

B. Students are required to accomplish a project demonstrating their command of the principles and skills introduced in the graduate program (MSAE). Significant responsibility for critical thinking and interpretation of technical information will fall on the student at a level commonly associated with graduate education.

VI. Course Outline

The course will be conducted as individual research, and includes the following items that the student submits to the advisory committee:

A. Project Proposal to be approved by the graduate advisory committee.
B. Project Report to be reviewed by the graduate advisory committee. The report should consist of introduction, literature review, methodology (if applicable), results, conclusions, recommendations, and references.
C. Final Project Report incorporating suggestions and improvements as prescribed by reviewers.

VII. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will:
   1. Provide students with understanding and skills how to create a concise project proposal with a relevant background, problem statement, hypothesis and scope of work.
   2. Provide students with skills to formulate appropriate outline for reports.
   3. Provide students with understanding on the clarity, accuracy, precision, relevance, depth, breadth, logic, significance and fairness required for engineering research reports.
   4. Prepare students to professional engineering reports.

B. Student Learning Outcomes. After successful completion of the course, the students will be able to:

Student Learning Outcomes	Assessment Procedures
1. Formulate engineering research proposals.	Project proposal
2. Formulate appropriate research methodology.	Proposal and report
3. Conduct literature reviews and collect information pertinent to the research topics.	Project report
4. Comprehend the clarity, accuracy, precision, relevance, depth, logic, significance and fairness required for engineering research reports.	Project report
5. Author professional engineering reports.	Project report

VIII. Suggested Text: NA

IX. Bibliography and Resources

1. Cold Regions Engineering, *Proceedings*, ASCE, Reston, VA.
2. Doré, G. and Zubeck, H., 2009. *Cold Regions Pavement Engineering*, ASCE Press, Reston, VA.
3. Eranti, E., and Lee, G., 2000. *Cold Region Structural Engineering*, McGraw-Hill, New York, NY.
4. Freitag, D. and McFadden, T. 1997. *Introduction to Cold Regions Engineering*, ASCE Press, Reston, VA. [Classic text].
5. *Journal of Cold Regions Engineering*, ASCE Press, Reston, VA.
6. Smith, D. W. (Editor), 1996. *Cold Regions Utilities Monograph*, 3rd ed., ASCE Press, Reston, VA. [Classic text].

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

1a. School or College	1b. Division	1c. Department
EN SOENGR	No Division Code	Civil Engineering

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
AE	A689	CE A689	3	(3+0)

6. Complete Course Title
Cold Regions Pavement Design
Cold Regions Pavement Design
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 (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/2015 To: 99/9999

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. Master of Science Arctic Engineering	337	1/24/2014	Hannele Zubeck
2.			
3.			

Initiator Name (typed): Hannele Zubeck Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 2/4/2014
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 2/4/2014

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)*
Topics include design, maintenance and rehabilitation of pavement structures in cold regions where frost, snow and ice threaten expected service life.

16a. Course Prerequisite(s) *(list prefix and number)*	16b. Test Score(s)	16c. Co-requisite(s) *(concurrent enrollment required)*
NA	N/A	N/A

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

16e. Registration Restriction(s) *(non-codable)*
Graduate standing, with a baccalaureate degree in engineering, or upper class standing in an accredited undergraduate program in engineering, having completed a tansportation engineering course with a minimum grade of C.

17. ☒ Mark if course has fees CoEng fee

18. ☐ Mark if course is a selected topic course

19. Justification for Action
For identity and assessment purposes, the key graduate courses of the Arctic Engineering program are being given the Arctic Engineering prefix.

Initiator (faculty only) Date
Hannele Zubeck
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved Department Chairperson Date

☐ Approved
☐ Disapproved Curriculum Committee Chairperson Date

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

☐ Approved
☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved Provost or Designee Date

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

I. Initiation Date: February 20, 2014

II. Course Information

A.	College:	College of Engineering
B.	Course Title:	Cold Regions Pavement Design
C.	Course Subject/Number:	AE A689
D.	Credit Hours:	3.0
E.	Contact:	3+0
F.	Grading Information:	A-F
G.	Course Description:	Topics include design, maintenance and rehabilitation of pavement structures in cold regions where frost, snow and ice threaten expected service life.
H.	Status of course relative to degree or certificate program:	Applies to the MS program in Arctic Engineering
I.	Lab Fees:	CoEng fee
J.	Coordination:	UAA/CoEng/CE faculty list serves
K.	Course Prerequisites:	NA
L.	Registration Restrictions:	Graduate standing, with a baccalaureate degree in engineering, or upper class standing in an accredited undergraduate program in engineering, having completed a transportation engineering course with a minimum grade of C

III. Course Activities

Faculty presentations, homework assignments, exams, class discussions and activities relating to course's term paper conference.

IV. Evaluation

Evaluation procedures are at the discretion of the instructor and will be disclosed during the first class in the semester. Students will be evaluated on homework assignments, exams and term paper.

V. Course Level Justification

Presentations and reading will include advanced scientific and engineering topics that require a background in math and science equivalent to that obtained in a bachelor's degree in engineering.

VI. Course Outline

- Cold regions pavements
- Pavement environment
- Calculation of engineering parameters
- Pavement deterioration modes
- Soil investigation and material testing
- Design approaches
- Mix design of bound layers
- Pavement structural design
- Maintenance and rehabilitation
- Pavements on permafrost
- Presenting research results

VII. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will demonstrate how to:
   1. Apply factors and calculate engineering parameters for pavement design in cold regions.
   2. Analyze failure modes of pavements.
   3. Plan for site investigation and material testing.
   4. Compare alternatives for design and maintenance strategies.
   5. Design pavement surfaces and structures.
   6. Plan maintenance operations, select rehabilitation techniques and seasonal load restrictions.
   7. Design pavements in a permafrost environment.

B. Student Learning Outcomes. After successful completion of the course, the students will be able to:

Student Learning Outcomes	Assessment Procedures
1. Analyze factors affecting pavement design in cold regions.	Homework assignments, exams, term paper.
2. Analyze failure modes of pavements under the effects of traffic, environmental stresses and the combination of the two.	Homework assignments, exams, term paper.
3. Manage site investigations and material testing.	Homework assignments, exams, term paper.
4. Evaluate alternatives for design and maintenance techniques, strategies and their financial impacts.	Homework assignments, exams, term paper.
5. Manage and perform pavement designs in cold regions.	Homework assignments, exams, term paper.
6. Author papers acceptable for publication.	Term paper.

VIII. Suggested Text

Doré, G. and Zubeck, H., 2009. *Cold Regions Pavement Engineering*, ASCE Press, Reston, VA.

IX. Bibliography and Resources

1. Andersland, O., and Ladanyi, B., 1994. *Frozen Ground Engineering*, ASCE Press, Reston, VA. [Classic text].
2. Huang, Y., 2004. *Pavement Analysis and Design*, Pearson, Prentice Hall, Upper Saddle River, NJ.
3. *Journal of Cold Regions Engineering*, ASCE Press, Reston, VA.
4. Vinson, T., Rooney, J. and Haas, W., 1996. *Roads and Airfields in Cold Regions*, ASCE Press, Reston, VA. [Classic text].

Graduate Academic Board Draft Goals
September 26, 2014

1. Review curriculum in an expeditious manner

2. Take a closer look at stacking

3. Evaluate and assist with workflow for e-curriculum

4. Review processes in the curriculum handbook