

NEW MEXICO INSTITUTE OF MINING AND TECHNOLOGY

FACULTY SENATE MEETING

Friday, May 13, 2011

10:00 a.m.

Workman 101

Minutes

1. Dr. Stone called the meeting to order at 10:05am by asking for a change to the agenda. He asked that the May 2011 graduation list be moved to the first item. This was approved by general consent.
5. **New Business**
 - A. Registrar, Sara Grijalva brought the list of May 2011 graduates forward for approval with the addition of Elizabeth Burton. The motion was seconded. Ms. Grijalva pointed out the list was shorter this year because so many degrees have already been conferred throughout the year. She further clarified the list represented degrees completed. The list of graduates walking would include many whose degrees were conferred since May 2010. The motion passed.
 2. It was moved and seconded the minutes of April 5, 2011 be approved. The motion passed.
 3. **Announcements.**
 - A. Dr. Stone spoke of the passing of Betty Reynolds, Former Skeen Library Director. Ms. Reynolds passed away in Deming surrounded by family.
 - B. Ms. Grijalva announced there are still seven grades missing. Dr. Gerity reminded the Senate an automatic A will be assigned to all missing grades. If necessary, the grade would have to be corrected at a later date.
 - C. Dr. Gerity announced:
 - i. Ms. Aafloy is expected to return May 23.
 - ii. Graduation reminder: Attendance is appreciated. Faculty need to line up at 9am sharp.
 - iii. Academic Affairs still has six contracts not returned. They are due to the Academic Affairs office no later than 5pm today.
 - iv. Dr. Scott Zeman, Associate V.P. for Academic Affairs will be moving to Florida. He has accepted a position with St. Thomas where he will serve as the Dean of Biscayne College. Dr. Zeman will be missed. On behalf of the Faculty Senate, we wish him the best in his continued success.
 4. **Committee Reports.**
 - A. **Honorary Degrees and Awards Committee** – R. Morales-Juberias, Chair, opened the floor for nominations for the **Langmuir Award**. The Langmuir Award honors an outstanding scientific research paper by a graduate student. Three nominations were strongly supported by their advisors. Nikolai Evdokimov of the Chemistry Department won based on his research paper titled, “Structural Simplification of Bioactive Natural Products with Multicomponent Synthesis. 3. Fused Uracil-Containing Heterocycles as Novel Topoisomerase-Targeting Agents.” in the Journal of Medicinal Chemistry. His work is crucial to finding new ways to treat cancer. New Mexico Tech has a small army of interdisciplinary researchers who are in pursuit of new anti-cancer drugs. Evdokimov is a standout among a team of exceptional researchers.

The **Brown Award** is named in honor of Mr. C. T. Brown, who was for many years a member of the Tech Board of Regents. It is presented to the member of the graduating class who, in the opinion of the Faculty, ranks highest in scholarship, conduct, and leadership. Six names were presented with strong support. It was moved and 2nd the nominations be closed. The motion passed. Nic Schafer, graduating with a Mechanical Engineering degree was selected by the senate to receive this prestigious award. The nominee was cited for being a quiet but effective leader as a RA and peer facilitator, ASME officer, and a member of Tau Beta Pi. Mr. Schafer was invited to spend a summer in Germany that resulted in a scholarship for graduate studies.

He went on to start the NM Tech chapter of Engineers Without Borders. Mr. Schafer designed the Dine college tutor program.

The **Cramer Awards** are given to the male and female seniors graduating in engineering who rank highest in scholarship. Zahra Ghanbari of Materials Engineering is headed to Golden, Colo., where she has been accepted into a master's program at Colorado School of Mines. David Burkhard is truly a rare breed. He finished his studies with a perfect 4.0 GPA with a bachelor's in Mineral Engineering.

The **Founder's Award** is given to the graduate student who has made an outstanding contribution through scholarship, research, and involvement in campus affairs. After receiving strong nominations with support from the Senate it was moved and 2nd to close the nominations. The vote was taken in favor of Cynthia Veitch, who completed her master's in Computer Science. Veitch was accepted into the Scholarship For Service program, which is a competitive program for computer scientists who specialize in information security. Her master's thesis is titled, "Towards Automatic Classification of Citation Function in Scientific Literature: Observations on the Mapping of Rhetorical Structure to Citation Function." Veitch has worked as a researcher and intern at Los Alamos National Laboratory, the Army Research Lab in Maryland and Sandia. She produced stellar work as a master's student and now works in Critical Systems Security at Sandia National Laboratories in Albuquerque.

B. Retention and Assessment Committee – D. Burleigh, Chair, announced there was no report at this time.

5. New Business.

A. Dr. Gerity asked the department chairs to bring forward their catalogue changes from the Council of Chairs

Earth and Environmental Science Dr. Gary Axen, Associate Chair, proposed changes in a number of areas.

i. Earth and Environmental Science Curriculum Changes

Proposed changes to the Earth Science (Erth) curriculum

We propose changes to several of our courses based upon our experiences to-date with the "new" curriculum (now 3-4 years old) and on the needs of degree options in Earth Science. These affect students in our department as well as those in Mineral and Petroleum Engineering. Additional clerical changes will be sent directly to the registrar.

Proposed changes for Mineralogy Curricula

In our major curriculum changes in the undergraduate EES program, mineralogy was divided up into a number of classes. For 4 years now we have tried this out and Andy Campbell, as the mineralogy instructor, feel that it is not working. The content of the course is fragmented and not conducive to a comprehensive look at minerals. We propose to create a new mineralogy course and remove basin mineralogy content from Erth 203/206 and Erth 380.

The new class would be (actual catalog verbiage on following page):

Erth 2xx (200?) Introduction to Mineralogy. 3 Cr. (2 Cls hrs, 3 lab hrs). Offered each spring.

An introduction to minerals including identification in hand samples and thin sections, crystal structures, physical properties, chemical compositions, occurrences and uses. Lab will focus on mineral identification by physical and optical properties.

This course will be similar in content to what was taught for almost 25 years here at NMT. It will not include the extensive optical mineralogy that was covered since the separate optical course was removed 20 years ago but it will be more that the students are getting in the current curriculum.

In keeping with this recommendation, we propose that with 203 be dropped from 4 credits to 3. That will make it possible for 206 to be dropped entirely and have all students (mining and Petroleum Engineers and Earth Science majors) take 203. This will eliminate the current cumbersome organization in which the Petroleum Engineers take Erth 206, which runs concurrently with Erth 203 for the first ~2/3-3/4 of the

semester. This will affect Mineral Engineering students that are required to take 203 by freeing up one credit. It is possible that Mineral Engineering will have their students take the new Mineralogy course in addition to, or instead of, Erth 203. The former option is similar to the Mineral Engineering requirements in the EES curriculum prior to our shift to the new curriculum, which were mineralogy and structural geology (a significant part of the latter is now covered on Erth 203).

For Erth majors, we would hope that Mineralogy would be taken as soon as possible in their course work after a 100 level class. This could be done by making it a co-requisite for courses particularly 204. It would not be possible to make it a co-req for 203 as Petroleum Engineering students would not need to take it.

For Erth majors this would add 2 required credits. (3 minus the one regained by dropping 203 from 4 to 3). This might be taken from Erth electives.

The catalog changes associated with the proposed Mineralogy curriculum are:

Erth 200, Introduction to Mineralogy. 3 Cr. (2 Cls hrs, 3 lab hrs). *Prerequisite: a 100-level EARTH course and associated lab Offered spring semester.*

An introduction to minerals, including identification in hand samples and thin sections, crystal structures, physical properties, chemical compositions, occurrences and uses. Lab will focus on mineral identification by physical and optical properties.

ERTH 203, Earth's Crust: Materials, Processes, and Dynamics, 3 cr, 2 cl hrs, 3 lab hrs

Prerequisite: a 100_level EARTH course and associated lab Offered spring semester

Overview of the evolution of the crust of the Earth, the major rock types and processes that form it, and the main methods used to study it. Topics include sedimentology, petrology, structural geology, geochronology, subsurface fluid flow, and petroleum geology. Field trips.

DELETE Erth 206:

ERTH 206, Fundamentals of Earth's Crust, 3 cr, 2 cl hrs, 3 lab hrs *Prerequisite: a 100_level EARTH course and associated lab Offered spring semester*

Overview of the evolution of the crust of the Earth, the major rock types and processes that form it, and the main methods used to study it. Topics include: mineralogy, igneous, sedimentary and metamorphic petrology, structural geology, subsurface fluid flow, and petroleum geology. This course is for non_majors only. Earth Science majors must enroll in EARTH 203. Meets concurrently with EARTH 203, but course work differs. Field trips.

ERTH 380, Igneous and Metamorphic

Petrology, 4 cr, 3 cl hrs, 3 lab hrs *Prerequisites: EARTH 203, CHEM 121, CHEM 122 Offered spring semesters, odd-numbered years*

Origin, occurrence, identification and description of igneous and metamorphic rocks. Topics covered include fractional crystallization and melting processes, volcanology, physical and chemical properties of magmas, granitic batholiths, metamorphic facies and their key mineral assemblages, metamorphic rock fabrics, and qualitative determination of P-T-t paths recorded by metamorphic rocks. Binary and ternary phase diagrams will be introduced and used. Examination and identification of igneous and metamorphic rocks and minerals and their salient textures in thin section and hand samples

Dr. Axen called for adoption of these changes. Discussion asked if the impact on the Mineral and Petroleum Engineering departments were supportive of the proposed changes. Dr. Engler pointed out these changes had been fully vetted through Council of Chairs. The motion passed.

ii. Changes to the **Volcanology** Option

The changes shown below to the Volcanology Option of the Earth Science degree affect relatively few students. The fieldwork portion of the curriculum is raised by one credit, from 5 to 6, to bring it in line

with fieldwork requirements for other Earth Science majors. These changes assume that the changes above to Erth 2xx (Mineralogy), Erth 203-206 and Erth 380 have been approved. Changes are underlined below:

Bachelor of Science in Earth Science with Volcanology Option

Minimum credit hours required—130

In addition to the Education Core Curriculum Requirements (page xx), the following courses are required:

- A 100-level EARTH course and associated lab (4)
- EARTH 201 (4), EARTH 202 (4), EARTH 203 (3), EARTH 204 (4), EARTH 205 (1), ERTH 2xx (Mineralogy) (3), EARTH 3xx (Stratigraphy) (1), EARTH 325 (3), EARTH 340 (3), EARTH 390 (3), EARTH 468 (3), EARTH 483 (2), EARTH 380 (4), EARTH 444 (3)
- EARTH 356 (Volcanoes) (3), EARTH 457 (Volcano Geophysics) (3)
- a total of 3 credit hours from either EARTH 454 (Volcanology Seminar) (3) or EARTH 456 (Advanced Volcanology) (3)
- a total of 4 credit hours from EARTH 484, EARTH 485, EARTH 437 (Volcanology Field Trip), and/or EARTH 455 (Volcano Geophysical Field Methods). At least 2 of the 4 credit hours must be satisfied through EARTH437 or EARTH455
- One of the following: EARTH 491 (3), EARTH 492 (3)
- Earth science electives, minimum 4 credit hours in courses numbered 300 and above
- MATH 283 (3) or 382 (3)
- CHEM 331(3)
- Technical electives, minimum 3 credit hours from courses numbered 300 or above from the following fields: mathematics, biology, computer science, physics, chemistry, and engineering.
- Electives (3) to complete 130 credit hours

Dr. Axen moved for adoption of these changes. The motion passed without discussion.

Changes to Erth 385; Creation of new course emphasizing stratigraphy.

At present, the volcanology curriculum does not require Erth 385, which is basically Stratigraphy and Paleontology. However, the first field course (483) is required for the Volcanology option and has Erth 385 as a prerequisite. Hence, every student of the Volcanology option must get a petition approved to take Erth 483 without the prerequisite Erth 385. In addition, the Stratigraphy part of Erth 385 is important to the Volcanology students, but the Paleontology part is of minimal significance to that group.

Thus we have decided to create a new 1-credit Erth 3xx (384?) course that is run concurrently with Erth 385 for roughly the first third, during which time Stratigraphy is taught. The Volcanology option students will register for the new course. The rest of our majors will take all of Erth 385 as currently required.

This will require the following changes in the catalog, including some to prerequisites of certain courses.

New Course

ERTH 3xx (384?), Stratigraphy, 1 cr, 2 cl hrs, 3 lab hrs

Prerequisite: EARTH 203 Offered spring semester, odd numbered years

Survey of lithostratigraphic, biostratigraphic and chronostratigraphic principles. Topics include seismic and sequence stratigraphy and stratigraphic modeling. Weekend field trip required. Meets with EARTH 385 for the first third of the semester.

Revised Title and Semester Offered

ERTH 385, ~~Earth History~~ Stratigraphy and Paleontology, 3 cr, 2 cl hrs, 3 lab hrs

Prerequisite: EARTH 201 and EARTH 203 Offered ~~fall~~ spring semester, odd numbered years

Continuation of paleontologic and stratigraphic principles; survey of geologically important invertebrate biota preserved as fossils; their modes of preservation, collection techniques, taxonomy, evolution, paleobiology and paleoecology; overview of the late Precambrian and Phanerozoic biotic and stratigraphic histories in the context of North America tectonics. Weekend field trips required.

Revised Prerequisites

ERTH 480, Field Methods in Earth Science, 6 cr

Prerequisites: EARTH 203, 380 and 385 or 3xx Offered summers (6 weeks)

Collection, processing, and interpretation of field data developed by geologic mapping in sedimentary, igneous, and metamorphic terrane. Presentation of geologic reports involving maps, cross sections, and sample data.

ERTH 483, Field Methods in Earth Science I, 2 cr *Prerequisites: EARTH 203, 380 and 385 or 3xx Offered Summers (2 weeks)*

Collection, processing and interpretation of geological data from stratified rocks, collected by geologic mapping and other means. Presentation of geologic reports involving stratigraphic sections, maps, cross sections, and other data. Students should register for this course in the spring semester

Dr. Axen moved for adoption of these changes. The motion passed without discussion.

iii. **Hydrology** changes were presented by Dr. R. Aster to separate the co-requisite of the lab which will accommodate the distance students. There being no discussion, Dr. Stone called for a vote and the motion passed.

Change from:

ERTH 440, Hydrological Theory and Field Methods, 4 cr, 3 cl hrs, 3 lab hrs

Prerequisites: MATH 132, PHYS 132 Offered fall semester

Fundamentals of hydrological flow and transport will be presented. Precipitation, runoff processes, and flood generation. Capillarity, unsaturated flow, and infiltration. Laws of flow in porous media, Hydraulic storage, and flow to wells. Laboratory and field exercises that demonstrate and implement fundamental concepts of the hydrological cycle.

Change to:

ERTH 440, Hydrological Theory and Field Methods, 3 cr, 3 cl hrs

Prerequisites: MATH 132, PHYS 132

Offered fall semester

Fundamentals of hydrological flow and transport will be presented. Precipitation, runoff processes, and flood generation. Capillarity, unsaturated flow, and infiltration. Laws of flow in porous media, hydraulic storage, and flow to wells. Laboratory and field exercises that demonstrate and implement fundamental concepts of the hydrological cycle.

~~Laboratory and field exercises that demonstrate and implement fundamental concepts of the hydrological cycle.~~

ERTH 440L, Hydrological Theory and Field Methods Laboratory, 1 cr, 3 lab hours

Prerequisites: MATH 132, PHYS 132

Offered fall semester

~~Laboratory and field exercises that demonstrate and implement fundamental concepts of the hydrological cycle.~~

Page 112. Change to:

Bachelor of Science in Earth Science with Environmental Geology Option

Minimum credit hours required—130 In addition to the General Education Core Curriculum Requirements (page 87), the following courses are required:

A 100-level EARTH course and associated lab (4) EARTH 201 (4), EARTH 202 (4), EARTH 203 (4), EARTH 204 (4), EARTH 205 (1), EARTH 390 (3), EARTH 325 (3), EARTH 340 (3), EARTH 468 (3), EARTH 483 (2) EARTH 380 (4), EARTH 385 (3), EARTH 434 (3), EARTH 405 (3), ~~ERTH 440 (4), EARTH 440 (3) & 440L (1)~~, EARTH 484 (2), EARTH 485 (2) Chem 311 (3)

Technical electives, minimum 3 credit hours from courses numbered 300 or above from the following fields: mathematics, biology, computer science, physics, chemistry, and engineering.

Electives to complete 130 credit hours

**Sample Curriculum for the Bachelor of Science in Earth Science with Environmental Geology
Option, Odd Numbered Years**

(Note: GECC = General Education Core Curriculum, see page 87)

Semester 1 (Fall Odd)

- 4 CHEM 121 & 121L (general)
- 4 MATH 131 (calculus)
- 3 ENGL 111 (college English)
- 4 A 100-level EARTH class and associated lab
- 15 Total credit hours

Semester 2 (Spring Even)

- 4 CHEM 122 & 122L (general)
- 4 MATH 132 (calculus)
- 3 ENGL 112 (college English)
- 4 EARTH 203 (crust)
- 15 Total credit hours

Semester 3 (Fall Even)

- 5 PHYS 121 & 121L (general)
- 3 ENGL 341 (technical writing)
- 4 EARTH 204 (whole Earth)
- 1 EARTH 205 (practicum)
- 4 Math 231 (calc III)
- 17 Total credit hours

Semester 4 (Spring Odd)

- 5 PHYS 122 & 122L (general)
- 3 CHEM 311 (quantitative)
- 4 EARTH 201 (bio)
- 4 EARTH 380 (min petrology)
- 16 Total credit hours

Semester 5 (Fall Odd)

- 3 EARTH 453 (int. structure)
- 3 Social Science GECC Area 4
- 4 EARTH 202 (surface)
- 3 EARTH 385 (Earth history & paleontology)
- 4 EARTH 440 & 440L (hyd th & fld)
- 17 Total credit hours

**Sample Curriculum for the Bachelor of Science in Earth
Science with Environmental Geology Option,
Even Numbered years**

(Note: GECC = General Education Core Curriculum, see page 87)

Semester 1 (Fall Even)

- 4 CHEM 121 & 121L (general)
- 4 MATH 131 (calculus)
- 3 ENGL 111 (college English)
- 4 A 100-level EARTH class and associated lab
- 15 Total credit hours

Semester 2 (Spring Odd)

- 4 CHEM 122 & 122L (general)
- 4 MATH 132 (calculus)
- 3 ENGL 112 (college English)

4 EARTH 201 (bio)
 15 Total credit hours

Semester 3 (Fall Odd)
 5 PHYS 121 & 121L (general)
 3 ENGL 341 (technical writing)
 4 EARTH 202 (surface)
 1 EARTH 205 (practicum)
 3 EARTH 385 (Earth history & paleontology)
 16 Total credit hours

Semester 4 (Spring Even)
 5 PHYS 122 & 122L (general)
 4 EARTH 203 (crust)
 3 Math 231 (calc III)
 3 Humanities GECC Area 5
 15 Total credit hours

Semester 5 (Fall Even)
 3 Social Science GECC Area 4
 4 EARTH 204 (whole Earth)
 4 EARTH 380 (min/pet)
 3 EARTH 325 (near surface geophysics)
 3 Humanities GECC Area 5
 17 Total credit hours

Semester 6 (Spring Odd)
 3 Social Science GECC Area 4
 3 CHEM 311 (quantitative)
 3 Humanities/Social Science GECC Area 6
 3 EARTH 340 (global change hydrology)
 3 EARTH 434 or ENVIS 412/ GEOL 512 (remote sensing or GIS)
 15 Total credit hours

Summer
 6 EARTH 483 (field mapping), EARTH 484 (surficial mapping), EARTH 485 (met&struct mapping)

Semester 7 (Fall Odd)
 4 EARTH 440 & 440L (hyd th & fld)
 3 Humanities/Social Science GECC Area 6
 3 EARTH 390 (geochemistry)
 3 EARTH 453 (int. structure)
 3 Earth science elective
 16 Total credit hours

Semester 8 (Spring Even)
 3 Technical Elective
 1 EARTH 441 (hydrogeology)
 1 EARTH 442 (vadose)
 1 EARTH 443 (atm dyn & rain)
 3 Electives to reach 130 credit hours
 3 CHEM 422 (enviro chem)
 3 EARTH 468 (evolution of Earth)
 15 Total credit hours

Page 117. Change to:

Bachelor of Science in Earth Science with Hydrology Option

Minimum credit hours required: 130

In addition to the General Education Core Curriculum

Requirements (page 87), the following courses are required:

- A 100-level EARTH course and associated lab (4)
- EARTH 201 (4), EARTH 202 (4), EARTH 203 (4), EARTH 204 (4), EARTH 205 (1), EARTH 390 (3), EARTH 325 (3), EARTH 340 (3), EARTH 468 (3), EARTH 483 (2)
- **ERTH 440 (4) EARTH 440 & 440L (4)**, EARTH 441 (1), EARTH 442 (1), EARTH 443 (1), EARTH 484 (2), EARTH 485 (2)
- Math 231 (4), Math 283 (3), Math 335 (3)
- Earth science electives, minimum 6 credit hours in courses numbered 300 and above
- CHEM 311 & 311L (4), ENVS 412 (3), CSE 113 & 113L (4)
- Electives to complete 130 credit hours

Bachelor of Science in Earth Science with Hydrology Option, Odd Numbered Years

(Note: GECC = General Education Core Curriculum, see page 87)

Semester 1 (Fall Odd)

- 4 CHEM 121 & 121L (general)
- 4 MATH 131 (calculus)
- 3 ENGL 111 (college English)
- 4 A 100-level EARTH class and associated lab
- 15 Total credit hours

Semester 2 (Spring Even)

- 4 CHEM 122 & 122L (general)
- 4 MATH 132 (calculus)
- 3 ENGL 112 (college English)
- 4 EARTH 203 (crust)
- 15 Total credit hours

Semester 3 (Fall Even)

- 5 PHYS 121 & 121L (general)
- 4 MATH 231 (calculus III)
- 4 EARTH 204 (whole Earth)
- 1 EARTH 205 (practicum)
- 3 EARTH 390 (geochemistry)
- 17 Total credit hours

Semester 4 (Spring Odd)

- 5 PHYS 122 & 122L (general)
- 3 Math 335 (differential equations)
- 4 CSE 113 (programming)
- 4 EARTH 201 (bio)
- 16 Total credit hours

Semester 5 (Fall Odd)

- 3 Social Science GECC Area 4
- 3 MATH 283 (statistics)
- 4 EARTH 202 (surface)
- 4 CHEM 311 & 311L (quant)
- 3 Humanities GECC Area 5
- 17 Total credit hours

Semester 6 (Spring Even)

- 3 Social Science GECC Area 4
- 3 Humanities GECC Area 5
- 3 ENGL 341 (technical writing)
- 3 EARTH 340 (global change hydrology)
- 3 ENVS 412 (intro GIS)
- 15 Total credit hours

Summer

6 EARTH 483 (field mapping), EARTH 484 (surficial mapping), EARTH 485 (met&struct mapping)
Semester 7 (Fall Even)
6 Humanities/Social Science GECC Area 6
3 EARTH 325 (near surface geophysics)
4 EARTH 440-4 EARTH 440 & 440L (hydr theory & field)
3 Earth science elective
16 Total credit hours

Semester 8 (Spring 11)
4 Electives to reach 130 credit hours
3 Earth science elective
1 EARTH 441 (hydrogeology)
1 EARTH 442 (vadose zone proc.)
1 EARTH 443 (atm dynam & rainfall)
3 EARTH 468 (evol of Earth)
13 Total credit hours

**Bachelor of Science in Earth Science with Hydrology
Option, Even Numbered Years**

(Note: GECC = General Education Core Curriculum, see page 87)

Semester 1 (Fall Even)
4 CHEM 121 & 121L (general)
4 MATH 131 (calculus)
3 ENGL 111 (college English)
4 A 100-level EARTH class and associated lab
15 Total credit hours

Semester 2 (Spring Odd)
4 CHEM 122 & 122L (general)
4 MATH 132 (calculus)
3 ENGL 112 (college English)
4 EARTH 201 (bio)
15 Total credit hours

Semester 3 (Fall Odd)
5 PHYS 121 & 121L (general)
4 MATH 231 (calculus III)
4 EARTH 202 (surface)
1 EARTH 205 (practicum)
3 EARTH 390 (geochemistry)
17 Total credit hours

Semester 4 (Spring 10)
5 PHYS 122 & 122L (general)
3 Math 335 (diff eqn)
4 CS 111 (programming)
4 EARTH 203 (crust)
16 Total credit hours

Semester 5 (Fall Even)
3 Social Science GECC Area 4
3 MATH 283 (statistics)
4 EARTH 204 (whole Earth)
4 CHEM 311 & 311L (quantitative)

3 EARTH 325 (near surface)
17 Total credit hours

Semester 6 (Spring Odd)

3 Social Science GECC Area 4
3 Humanities/Social Science GECC Area 6
3 ENGL 341 (technical writing)
3 EARTH 340 (global change hydrology)
3 ENV 412 (intro GIS)
15 Total credit hours

Summer

6 EARTH 483 (field mapping), EARTH 484 (surficial mapping), EARTH 485 (met & struct mapping)

Semester 7 (Fall Odd)

6 Humanities GECC Area 5
3 Humanities/Social Science GECC Area 6
4 EARTH 440 & 440L (hydro theory & field)
3 Earth science elective
16 Total credit hours

Semester 8 (Spring Even)

4 Electives to reach 130 credit hours
3 Earth science elective
1 EARTH 441 (hydrogeology)
1 EARTH 442 (vadose zone proc.)
1 EARTH 443 (atm dynam & rainfall)
2 EARTH 468 (evolution of Earth)
13 Total credit hours

Page 118. Change from:

Bachelor of Science in Earth Science with Petroleum Geology Option

Minimum credit hours required—130 In addition to the General Education Core Curriculum Requirements (page 87), the following courses are required:

- A 100-level EARTH course and associated lab (4)
- EARTH 201 (4), EARTH 202 (4), EARTH 203 (4), EARTH 204 (4), EARTH 205 (1), EARTH 390 (3), EARTH 325 (3), EARTH 330 (3), EARTH 468 (3), EARTH 483 (2)
- PETR 101 (1), EARTH 370 (3), EARTH 385 (3), EARTH 440 & 440L (4), EARTH 445 (3), EARTH 447 (3), EARTH 453 (3), EARTH 460 (3), EARTH 484 (2), EARTH 485 (2)
- Any two of the following classes: EARTH 424 (3), EARTH 425 (3), EARTH 446 (3), EARTH 457 (3), EARTH 470 (3)
- MATH 283 (3) or 382 (3)
- Electives to complete 130 hours

Sample Curriculum for the Bachelors of Science in Earth Science with Petroleum Geology Option, Odd Numbered Years

(Note: GECC = General Education Core Curriculum, see page 87)

Semester 1 (Fall odd)

4 CHEM 121 & 121L (general)
4 MATH 131 (calculus)
3 ENGL 111 (college English)
4 EARTH 101 & 101L (earth processes)
15 Total credit hours

Semester 2 (Spring even)

4 CHEM 122 & 122L (general)
4 MATH 132 (calculus)
3 ENGL 112 (college English)
4 EARTH 203 (crust)
15 Total credit hours

Semester 3 (Fall even)

1 PETR 101 (intro)
5 PHYS 121 & 121L (general)
3 ENGL 341 (technical writing)
4 EARTH 204 (whole earth)
3 EARTH 390 (geochem)
16 Total credit hours

Semester 4 (Spring odd)

Semester 5 (Fall odd)

4 EARTH 453 (adv. structure)
4 EARTH 202 (surface)
1 EARTH 205 (practicum)
3 EARTH 445 (exploration seismology)
3 Humanities GECC Area 5
15 Total credit hours

Semester 6 (Spring even)

3 Social Science GECC Area 4
3 MATH 283 or 382
3 Humanities/Social Science GECC Area 6
3 EARTH 330 (global change hydrology)
3 EARTH 446 (reflection interp)
15 Total credit hours

Summer even

6 EARTH 483 (fld map), EARTH 484 (surf map),
EARTH 485 (met&struct map)

Semester 7 (Fall even)

3 EARTH 385 (earth history & paleo)
3 Social Science GECC Area 4
3 EARTH 325 (near surface geop)
3 EARTH 447 (depo systems)
4 EARTH 440 & 440L (hydro theory)
16 Total credit hours

Semester 8 (Spring odd)

3 EARTH 424 (sed petrog)
3 EARTH 460 (petroleum geol)
3 Humanities/Social Science GECC Area 6
5 Electives to reach 130 credit hours
3 EARTH 468 (evolution of earth)
17 Total credit hours

**Sample Curriculum for the Bachelors of Science in Earth Science with Petroleum Geology Option,
Even Numbered Years**

(Note: GECC = General Education Core Curriculum, see page 87)

Semester 1 (Fall even)

- 4 CHEM 121 & 121L (general)
- 4 MATH 131 (calculus)
- 3 ENGL 111 (college English)
- 4 EARTH 101 & 101L (earth processes)
- 15 Total credit hours

Semester 2 (Spring odd)

- 4 CHEM 122 & 122L (general)
- 4 MATH 132 (calculus)
- 3 ENGL 112 (college English)
- 4 EARTH 201 (bio)
- 15 Total credit hours

Semester 3 (Fall odd)

- 1 PETR 101 (intro)
- 5 PHYS 121 & 121L (general)
- 3 ENGL 341 (technical writing)
- 4 EARTH 202 (surface)
- 1 EARTH 205 (practicum)
- 3 Social Science GECC Area 4
- 17 Total hours

Semester 4 (Spring even)

- 5 PHYS 122 & 122L (general)
- 4 EARTH 203 (crust)
- 3 MATH 283 or 382
- 3 Humanities GECC Area 5
- 15 Total credit hours

Semester 5 (Fall even)

- 3 EARTH 385 (earth history & paleo)
- 4 EARTH 204 (whole earth)
- 3 EARTH 447 (depo systems)
- 3 EARTH 325 (near surface geop)
- 3 Humanities GECC Area 5
- 16 Total credit hours

Semester 6 (Spring odd)

- 3 Social Science GECC Area 4
- 3 EARTH 424 (sed petrog)
- 3 Humanities/Social Science GECC Area 6
- 3 EARTH 330 (global change hydrology)
- 3 EARTH 460 (petroleum geol)
- 15 Total credit hours

Summer odd

- 6 EARTH 483 (fld map), EARTH 484 (surf map),
EARTH 485 (met&struct map)

Semester 7 (Fall odd)

- 4 EARTH 440 & 440L (hydro theory)
- 3 Humanities/Social Science GECC Area 6
- 3 EARTH 390 (geochem)
- 4 EARTH 453 (adv. structure)
- 3 EARTH 445 (exploration seismology)

17 Total credit hours

iv. Volcanology option – Dr. Axen moved for a change in order to provide field alignment with other areas of geology. This course change serves to split paleontology from volcanology.

There was no discussion and the motion passed.

Dr. Engler asked for clarification. The changes voted on today effecting the Earth and Environmental Science Catalogue impact only undergraduate programs. Changes to the Graduate courses will need to be approved by Graduate Council before presentation to the Faculty Senate.

Biology Curriculum Changes – Dr. T. Kieft, Chair, Biology Department proposed to change to the co-requisite for BIOL 111 to “CHEM 109 or CHEM 121”. This has been our practice since Chemistry initiated CHEM 109.

BIOL 111, 111L, General Biology, 4 cr, 3 cl hrs, 2 lab hrs

Corequisite: CHEM 109 or CHEM 121

A survey of life functions and associated structures at the cellular level. Energy fixation and utilization, growth and development through cell division, and gene action. [NMCCNS BIOL 1214: General Education Area III]

There was no discussion and the motion passed.

Computer Science Curriculum Changes – Dr. Liebrock asked to add a lab component to the following course.

Original Course Header:

CSE 452, Introduction to Sensor Networks, 3 cr, 3 cl hrs

Proposed Changes:

CSE 452, Introduction to Sensor Networks, 4 cr, 3 cl hrs, 2 lab hrs

There was no discussion and the motion passed.

6. Old Business
None

Before adjourning, Dr. López extended his gratitude to the Faculty for their support and hard work through difficult times. He wished all a safe and productive summer.

7. The meeting was adjourned by unanimous vote at 11:05am.

Respectfully Submitted,
Cathi VanFleet