

**EXECUTIVE COMMITTEE
COLLEGE OF NATURAL AND AGRICULTURAL SCIENCES
REPORT TO THE RIVERSIDE DIVISION
MAY 29, 2018**

To be adopted:

Proposed Changes to the Undergraduate Program in Earth Sciences

Earth Sciences Major

Students who choose Earth Sciences Major study the past, present, and future of our Earth through the interdisciplinary study of its various systems. Earth Sciences majors choose between concentrations in Geosystems, Climate Change, Geophysics, and Geobiology, which are explored from a combination of lab-based, field-based, and computational perspectives.

Geology Major

Students who choose the Geology major study the structure, composition, processes, and history of the Earth. In particular, the Geology major stresses features of the Earth's surface and interactions between its atmosphere, hydrosphere, biosphere, rocky crust, and interior.

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Geophysics Major

Students who choose the Geophysics major apply the principles and concepts of physics, mathematics, geology, and engineering to the study of the physical characteristics of the earth and other planets. They make measurements of gravity and magnetic fields, seismic waves, temperatures, and natural electric current. Geophysicists study these topics from the standpoint of the physics of solid bodies, gases, and fluids. Some geophysicists are field oriented, some

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laboratory oriented, some theoretical, and some combine these areas.

Change of Major and Continuation Criteria

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Change of Major and Continuation Criteria

Students wishing to change into or continue in the **Earth Sciences** major must be in good academic standing and show potential to graduate without exceeding 216 units.

Freshmen (2nd and 3rd quarter) must demonstrate progress in basic sciences and aptitude for earth sciences by satisfying the following three criteria by Spring Quarter or Summer Session:

• MATH 007B or MATH 009B eligible (e.g. completion of MATH 007A or MATH 009A with grades of C- or better)

• CHEM 01B eligible (e.g. completion of CHEM 01A with a grade of C- or better)

• One of GEO 001, GEO 002 or GEO 009

or
GEO 011, or GEO 003 completed with a grade of C- or better

Sophomores (up to 89.9 cumulative units) must demonstrate sustained progress in basic sciences and aptitude for geology by satisfying the following three criteria by Spring Quarter or Summer Session:

• CHEM 001B completed with passing grades

• MATH 009C or MATH 046 eligible (e.g. MATH 007B or MATH 009B with grade of C- or better)

• Two of GEO 001, GEO 002 or GEO 009

or
GEO 011, or GEO 003 completed with no grade below C- after repeats

Juniors (90 – 134.9 units) must demonstrate near completion of basic sciences and aptitude for upper-division earth sciences by satisfying the following three criteria by Spring Quarter or Summer Session:

- CHEM 001B and MATH 009C or MATH 046 completed with passing grades
- PHYS 040B or PHYS 002B and PHYS 002LB eligible (i.e. completion of one quarter of college physics with C- or better)
- GEO 001, GEO 002 or GEO 009 or GEO 011, GEO 003, GEO 111, and GEO 115 or GEO 157 (and all prerequisites) completed with no grade below C- after repeats

Seniors (135+ units): must have completed all but 1 course of the earth sciences core requirements by Spring Quarter or Summer Session, as follows:

- CHEM 001B, MATH 009C or MATH 046, PHYS 040B or PHYS 002B and PHYS 02LB completed with passing grades.
- BIOL 002 or BIOL 005A and BIOL 05LA or BIOL 020, and STAT 100A or STAT 155 completed with passing grades.
- GEO 001, GEO 002 or GEO 009 or GEO 011, GEO 003, GEO 004 or GEO 007 or GEO 008 or GEO 010 or GEO 012, GEO 111, GEO 115, and GEO 157 (and all prerequisites) completed with no grade below C- after repeats.

Students wishing to change into or continue in the **Geology** major must be in good academic standing and show potential to graduate without exceeding 216 units.

Freshmen (2nd and 3rd quarter) must demonstrate progress in basic sciences and aptitude for geology by satisfying the following three criteria by Spring Quarter or Summer Session:

- MATH 009B eligible (e.g. completion of MATH 007A or MATH 009A with grades of C- or better)
- CHEM 001B eligible (e.g. completion of CHEM 1A with a grade of C- or better)
- One of GEO 001, GEO 002, or GEO 003 completed with a grade of C- or better

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- One of GEO 001, GEO 002, or GEO 003 completed with a grade of C- or better

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- CHEM 001C completed with passing grades
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- Two of GEO 001, GEO 002, or GEO 003 completed with no grade below C- after repeats

Juniors (90 – 134.9 units) must demonstrate near completion of basic sciences and aptitude for upper-division geology by satisfying the following three criteria by Spring Quarter or Summer Session:

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- PHYS 040B or PHYS 002B and PHYS 002LB eligible (i.e. completion of one quarter of college physics with C- or better)
- GEO 002, GEO 003 and GEO 115 or GEO 122 (and all prerequisites) completed with no grade below C- after repeats

Seniors (135+ units): must have completed all but 1 course of the geology core requirements by Spring Quarter or Summer Session, as follows:

- CHEM 001C, MATH 009C or MATH 046 and PHYS 040C or PHYS 002C and PHYS 02LC completed with passing grades.
- BIOL 002 or BIOL 005A and BIOL 05LA or BIOL 020, and STAT 100A or STAT 155 completed with passing grades.
- GEO 001, GEO 003, GEO 115, and GEO 122 or GEO 101 (and all prerequisites) completed with no grade below C- after repeats.

Transfer Selection Criteria

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- CHEM 001B and MATH 009C or MATH 046 completed with passing grades
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- GEO 002, GEO 003, GEO 111, GEO 115 or GEO 122 (and all prerequisites) completed with no grade below C- after repeats

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- CHEM 001B, MATH 009C or MATH 046 and PHYS 040B or PHYS 002B and PHYS 02LB completed with passing grades.
- BIOL 002 or BIOL 005A and BIOL 05LA or BIOL 020, and STAT 100A or STAT 155 completed with passing grades.
- GEO 001, GEO 002, GEO 003, GEO 111, GEO 115, GEO 116 and GEO 122 and GEO 101 or GEO 118 (and all prerequisites) completed with no grade below C- after repeats.

Transfer Selection Criteria

their GPA and the strength of preparation for the intended major. A GPA of at least 2.70 is required. (This is a baseline GPA for consideration and not a guarantee of admission.)

In addition, applicants will need to complete college courses comparable to at least two of the following UCR year-long sequences in order to meet selection criteria for this major. Courses must be completed with “C” grades or better:

MATH 007A or MATH 009A, MATH 007B or MATH 009B, and MATH 009C or MATH 046 (mandatory)

And at least one sequence from:

1. BIOL 005A, BIOL 05LA or BIOL 020 and BIOL 005B (and BIOL 005C, if articulated))
2. CHEM 001A, CHEM 01LA, CHEM 001B, CHEM 01LB, ~~CHEM 001C, and CHEM 01LC~~
3. PHYS 040A, PHYS 040B, and PHYS 040C or PHYS 002A, PHYS 002B and PHYS 002C
4. MATH 010A, MATH 010B, and MATH 046

Courses must be completed with a letter grade, with no grade lower than a “C.” Students should visit assist.org for updated and comprehensive major preparation requirements.

Justification:

In the academic year 2016-2017 the Dept. of Earth Sciences proposed a major modification of our curriculum, restructuring the Geology degree to be more focused on professional training in geology, and

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And at least one sequence from:

1. BIOL 005A, BIOL 05LA or BIOL 020 and BIOL 005B (and BIOL 005C, if articulated))
2. CHEM 001A, CHEM 01LA, CHEM 001B, CHEM 01LB
3. PHYS 040A and PHYS 040B or PHYS 002A and PHYS 002B
4. MATH 010A, MATH 010B, and MATH 046

Courses must be completed with a letter grade, with no grade lower than a “C.” Students should visit assist.org for updated and comprehensive major preparation requirements.

Any applicant not meeting the above math course requirements may still be considered for possible admission by exception.

establishing an Earth Sciences degree with four concentrations, to reflect the expanding scope of the field and UCR's research interests. These changes were approved and are now part of the present catalog.

The changes proposed in this document are simple "housekeeping" changes that update all parts of the catalog. They include the following:

1. Changes to the faculty listing for future catalog edit changes.
2. A revised summary description of each of the three departmental majors.
3. Establishment of a program-specific "Change of Major and Continuing Criteria" for the Earth Sciences degree to reflect its curriculum.
4. Modification of the program-specific "Change of Major and Continuing Criteria" for the Geology degree to reflect the revised curriculum.

This proposal serves only to bring all parts of the catalog description into line with the new curricula as approved last year. There are no novel changes to the curricula proposed herein, and hence our description of this as "housekeeping".

We propose to remove the CHEM 001C and CHEM 01L PHYS049C, PHYS 002C and PHYS 02L requirements in line with the changes approved to our curriculum last year. This is a house keeping change that updates the curriculum and makes it consistent.

In line with UCR's mission to increase our reach to transfer students, and given the typically healthy ratio of transfer students in our program, the Department would to keep our requirements in line with those of continuing students but have the opportunity to review students not meeting the Math requirements by exception.

Approvals:

Approved by the faculty of the Department of Earth Sciences:	November 22, 2017
Approved by the Executive Committee of the College of Natural and Agricultural Sciences:	January 12, 2018
Reviewed by the Committee on Undergraduate Admissions:	April 10, 2018
Approved by the Committee on Educational Policy:	April 18, 2018