College of Science
Proposed Catalog Changes
Effective Summer 2019

BIOLOGICAL SCIENCES

1. Add the following course:

BIOL 151 Introduction to the Health Professions
1 credit
This course is primarily for first- and second-year students, but all students interested in healthcare careers are welcome. The primary content of this course is centered on a series of presentations by guests from a variety of health professions, ranging from occupational therapy to dentistry. Students will learn about the presenters' educational process and personal journey to become a professional in their chosen field, as well as the responsibilities, professional interactions, joys, and challenges of working in that field. Discussions and assignments are designed to broaden the perspective of the healthcare field for the student, and to begin preparing them to be successful applicants in their chosen field. This is a dynamic course and the content varies from one year to the next due to the availability of guest speakers and number of students registered.

Available via distance: No
Geographical Area: Moscow
Rationale: This course has been offered as a Special Topics Course (BIOL 204) by the pre-health professions advising program, and will now become a formalized course offering. There will be no additional workload for the department.

2. Change the following courses:

BIOL 213 Principles of Biological Structure and Function
4 credits
Principles of physiology in plants and animals (homeostasis, hormonal and neural control systems, organismal physiology). Three lectures and one 3-hour lab a week. (Spring only)
Prereq: BIOL 114 or both BIOL 115~~,~~and BIOL 115L.

Available via distance: No
Geographical Area: Moscow
Rationale: BIOL 114 is also considered adequate preparation for BIOL 213. BIOL 115 and 115L were recently separated into two courses so adding 115L to the prerequisites reestablishes the earlier requirement.

BIOL 300 Survey of Biochemistry
3 credits
Carries no credit after BIOL 380. Survey of biochemical principles and the molecular structure and function that describe the chemical basis of life. (Fall only)
Prereq: ~~CHEM 101 and CHEM 101L or CHEM 111 and CHEM 111L~~ CHEM 275 or CHEM 277
~~Coreq: CHEM 275 or CHEM 277~~

Available via distance: No
Geographical Area: Moscow
Rationale: Organic Chemistry or Carbon Compounds is necessary preparation for BIOL 300. Therefore CHEM 275 or CHEM 277 should be listed as prerequisites, not co-requisites.

BIOL 411 Senior Capstone
2 credits
Gen Ed: Senior Experience
Application of biological principles and information to the analysis of societal and philosophical issues. (Spring only)
Prereq: BIOL 213 or BIOL 250, BIOL 310, BIOL 312, BIOL 314 or BIOL 380, and Senior standing.

Available via distance: No
Geographical Area: Moscow
Rationale: Expanded prerequisite combinations to make course accessible to more of the department's majors. These options are adequate preparation.

BIOL 421 Advanced Evolution/Population Dynamics
3 credits
~~Macro and Micro evolutionary patterns and processes examined from molecular, ecological, and paleontological perspectives. (Spring only)~~ Scientific understanding of the processes of evolution, the history of life on earth, and application of evolutionary principles across fields in biology. (Spring only)
Prereq: One of BIOL 310 or BIOL 314~~,~~or FOR 221 or REM 221 or WLF 220.

Available via distance: No
Geographical Area: Moscow
Rationale: BIOL 310 is also considered adequate preparation for BIOL 421. The other prerequisites are cross-listed with WLF 220 but are not always recognized by Degree Audit. The new course description more accurately reflects course content.

BIOL 474 ~~Principles of~~ Developmental Biology
3 credits
Joint-listed with BIOL 573
~~Analysis of mechanisms at cellular and molecular level during metazoan development. (Spring, Alt/yrs)~~ Embryology of model organisms, mechanisms of developmental processes, reproductive biology, stem cells, growth, and tissue regeneration. Additional projects/assignments required for graduate credit. (Fall, Alt/yrs).
Prereq: ~~BIOL 114 and BIOL 115, BIOL 115L;~~ BIOL 310 or BIOL 312.

Available via distance: No
Geographical Area: Moscow
Rationale: Either BIOL 310 or 312 is considered adequate preparation for BIOL 474/573. The new course description more accurately reflects course content.

BIOL 573 ~~Principles of~~ Developmental Biology
3 credits
Joint-listed with BIOL 474.
~~Analysis of mechanisms at cellular and molecular level during metazoan development. (Spring, Alt/yrs)~~ Embryology of model organisms, mechanisms of developmental processes, reproductive biology, stem cells, growth, and tissue regeneration. Additional projects/assignments required for graduate credit. (Fall, Alt/yrs).
Prereq: ~~BIOL 114 and BIOL 115, BIOL 115L;~~ BIOL 310 or BIOL 312

Available via distance: No
Geographical Area: Moscow
Rationale: Either BIOL 310 or 312 is considered adequate preparation for BIOL 474/573. The new course description more accurately reflects course content.

3. Make the following curricular changes to the **Biology Major** (B.A. or B.S.)

To graduate in this program, students must earn a minimum grade of "C" in BIOL 114, ~~and~~ BIOL 115, and BIOL 115L. Required course work includes the university requirements (see regulation J-3) and:

Rationale: BIOL 115 and 115L were recently separated into two courses. This change reflects the department's intent for all of our major degrees to require a minimum grade of "C" in the introductory sequence.

4. Make the following curricular changes to the **Biochemistry Major** (B.S.Biochem.):

To graduate in this program, students must earn a minimum grade of "C" in BIOL 114, ~~and~~ BIOL 115, and BIOL 115L. Required course work includes the university requirements (see regulation J-3) and:

BIOL 114	Organisms and Environments	4
BIOL 115	Cells & the Evolution of Life	3
BIOL 115L	Cells and the Evolution of Life Laboratory	1
BIOL 310	Genetics	3
BIOL 315	Genetics Lab	1
BIOL 312	Molecular and Cellular Biology	3
BIOL 313	Molecular and Cellular Laboratory	1
BIOL 380	Biochemistry I	4
BIOL 382	Biochemistry I Laboratory	2
BIOL 400	Seminar	1-16
BIOL 454	Biochemistry II	3
CHEM 111	Principles of Chemistry I	3
CHEM 111L	Principles of Chemistry I Laboratory	1
CHEM 112	Principles of Chemistry II	4
CHEM 112L	Principles of Chemistry II Laboratory	1
CHEM 253	Quantitative Analysis	3
CHEM 254	Quantitative Analysis: Lab	2

CHEM 277	Organic Chemistry I	3
CHEM 278	Organic Chemistry I: Lab	1
CHEM 372	Organic Chemistry II	3
MATH 170	Analytic Geometry and Calculus I	4
MATH 175	Analytic Geometry and Calculus II	4
PHYS 211	Engineering Physics I	3
PHYS 211L	Laboratory Physics I	1
PHYS 212	Engineering Physics II	3
PHYS 212L	Laboratory Physics II	1
STAT 251	Statistical Methods	3
Select one of the following Senior Experience courses		**2**
BIOL 401	Undergraduate Research	
BIOL 405	Practicum in Anatomy Laboratory Teaching	
BIOL 407	Practicum in Biology Laboratory Teaching	
BIOL 408	Practicum in Human Physiology Laboratory Teaching	
BIOL 411	Senior Capstone	
Select electives from the following: [1]		**6**
BE 433	Bioremediation	
BIOL 426	Systems Biology	
BIOL 432	Immunology	
BIOL 444	Genomics	
BIOL 461	Neurobiology	
BIOL 482	Protein Structure and Function	
BIOL 485	Prokaryotic Molecular Biology	
BIOL 487	Eukaryotic Molecular Genetics	
CHEM 374	Organic Chemistry II: Lab	
CHEM 472	Medicinal Chemistry	
CHEM 473	Intermediate Organic Chemistry	
FS 520	Instrumental Analysis	
PLSC 486	Plant Biochemistry	
PLSC 488	Genetic Engineering	
Additional classes can be substituted with prior approval from adviser and chairperson		
Select one of the following:		**3**
ENGL 207	Persuasive Writing	
ENGL 208	Personal & Exploratory Writing	
ENGL 317	Technical Writing	
Select one of the following:		**3**
CHEM 302	Principles of Physical Chemistry	
CHEM 305	Physical Chemistry	
CHEM 306	Physical Chemistry II	
Total Hours		**80-95**

Courses to total 120 credits for this degree

[1] Additional classes can be substituted with prior approval from adviser and chairperson

Available via distance: 50% or more of curricular requirements cannot be completed via distance
Geographical Area: Moscow
Rationale: BE 433, BIOL 426 and PLSC 486 are appropriate courses for Biochemistry electives.

5. Make the following curricular changes to the **Molecular Biology and Biotechnology Major** (B.S.M.B.B.):

To graduate in this program, students must earn a minimum grade of "C" in BIOL 114, ~~and~~ BIOL 115, and BIOL 115L. Required course work includes the university requirements (see regulation J-3) and:

BIOL 114	Organisms and Environments	4
BIOL 115	Cells & the Evolution of Life	3
BIOL 115L	Cells and the Evolution of Life Laboratory	1
BIOL 250	General Microbiology	3
BIOL 255	General Microbiology Lab	2
BIOL 310	Genetics	3
BIOL 315	Genetics Lab	1
BIOL 312	Molecular and Cellular Biology	3
BIOL 313	Molecular and Cellular Laboratory	1
BIOL 380	Biochemistry I	4
BIOL 382	Biochemistry I Laboratory	2
BIOL 400	Seminar	1-16
BIOL 454	Biochemistry II	3
BIOL 485 or BIOL 487	Prokaryotic Molecular Biology Eukaryotic Molecular Genetics	3
CHEM 111	Principles of Chemistry I	3
CHEM 111L	Principles of Chemistry I Laboratory	1
CHEM 112	Principles of Chemistry II	4
CHEM 112L	Principles of Chemistry II Laboratory	1
CHEM 277	Organic Chemistry I	3
CHEM 278	Organic Chemistry I: Lab	1
CHEM 372	Organic Chemistry II	3
MATH 170	Analytic Geometry and Calculus I	4
PLSC 488	Genetic Engineering	3
STAT 251 or STAT 301	Statistical Methods Probability and Statistics	3
Select 8-10 credits of Approved Electives from the following:		**8-10**
BIOL 432	Immunology	
BIOL 433	Pathogenic Microbiology	
BIOL 444	Genomics	
BIOL 447	Virology	
BIOL 461	Neurobiology	
BIOL 474	Principles of Developmental Biology	

BIOL 482	Protein Structure and Function	
BIOL 485	Prokaryotic Molecular Biology [2]	
BIOL 487	Eukaryotic Molecular Genetics	
FS 416	Food Microbiology	
FS 417	Food Microbiology Laboratory	
PLSC 476	Cell Biology	
Select one of the following:		**4**
BIOL 301	Undergraduate Research	
BIOL 401	Undergraduate Research	
BIOL 499	Directed Study	
PLSC 440	Advanced Laboratory Techniques	
Select one of the following Senior Experience courses:		**2**
BIOL 401	Undergraduate Research	
BIOL 405	Practicum in Anatomy Laboratory Teaching	
BIOL 407	Practicum in Biology Laboratory Teaching	
BIOL 408	Practicum in Human Physiology Laboratory Teaching	
BIOL 411	Senior Capstone	
Select one of the following:		**3**
ENGL 207	Persuasive Writing	
ENGL 208	Personal & Exploratory Writing	
ENGL 317	Technical Writing	
Select one of the following sequences:		**4**
PHYS 111 & 111L	General Physics I and General Physics I Lab	
PHYS 211 & 211L	Engineering Physics I and Laboratory Physics I	
Select one of the following:		**4**
PHYS 112 & 112L	General Physics II and General Physics II Lab	
PHYS 212 & 212L	Engineering Physics II and Laboratory Physics II	
Total Hours		**85-102**

Courses to total 120 credits for this degree

[1] Additional classes can be substituted with prior approval from advisor and chairperson.

[2] *Either BIOL 485 or BIOL 487 may be used as an elective if not taken above as a required course.*

Available via distance: 50% or more of curricular requirements cannot be completed via distance
Geographical Area: Moscow
Rationale: Either of the department's undergraduate research options (BIOL 301 or BIOL 401) is suitable for meeting this requirement for this major.

6. Make the following curricular changes to the **Microbiology Major** (B.S.Microbiol.):

To graduate in this program, students must earn a minimum grade of "C" in BIOL 114, ~~and~~ BIOL 115, and BIOL 115L. Required course work includes the university requirements (see regulation J-3) and:

BIOL 114	Organisms and Environments	4
BIOL 115	Cells & the Evolution of Life	3
BIOL 115L	Cells and the Evolution of Life Laboratory	1
BIOL 250	General Microbiology	3
BIOL 255	General Microbiology Lab	2
BIOL 310	Genetics	3
BIOL 315	Genetics Lab	1
BIOL 312	Molecular and Cellular Biology	3
BIOL 313	Molecular and Cellular Laboratory	1
BIOL 380	Biochemistry I	4
BIOL 400	Seminar	1-16
BIOL 401	Undergraduate Research	1-4
Or BIOL 301	Undergraduate Research	
or PLSC 440	Advanced Laboratory Techniques	
CHEM 111	Principles of Chemistry I	3
CHEM 111L	Principles of Chemistry I Laboratory	1
CHEM 112	Principles of Chemistry II	4
CHEM 112L	Principles of Chemistry II Laboratory	1
CHEM 277	Organic Chemistry I	3
CHEM 278	Organic Chemistry I: Lab	1
CHEM 372	Organic Chemistry II	3
MATH 170	Analytic Geometry and Calculus I	4
Select one of the following Senior Experience courses:		**2**
BIOL 401	Undergraduate Research	
BIOL 405	Practicum in Anatomy Laboratory Teaching	
BIOL 407	Practicum in Biology Laboratory Teaching	
BIOL 408	Practicum in Human Physiology Laboratory Teaching	
BIOL 411	Senior Capstone	
Select one of the following:		**3**
ENGL 207	Persuasive Writing	
ENGL 208	Personal & Exploratory Writing	
ENGL 317	Technical Writing	
Select one of the following:		**4**
PHYS 111 & 111L	General Physics I and General Physics I Lab	
PHYS 211 & 211L	Engineering Physics I and Laboratory Physics I	
Select one of the following:		**4**
PHYS 112 & 112L	General Physics II and General Physics II Lab	

PHYS 212 & 212L	Engineering Physics II and Laboratory Physics II	
Select 15 credits of Approved Electives from the following: [1]		**15**
BIOL 432	Immunology	
BIOL 433	Pathogenic Microbiology	
BIOL 447	Virology	
BIOL 444	Genomics	
BIOL 482	Protein Structure and Function	
BIOL 485	Prokaryotic Molecular Biology	
BIOL 487	Eukaryotic Molecular Genetics	
FS 416	Food Microbiology	
FS 417	Food Microbiology Laboratory	
MATH 437	Mathematical Biology	
PLSC 476	Cell Biology	
PLSC 488	Genetic Engineering	
STAT 251 or STAT 301	Statistical Methods Probability and Statistics	
SOIL 425	Microbial Ecology	
Total Hours		**75-93**

Course List

Courses to total 120 credits for this degree

[1] Additional classes can be substituted with prior approval from advisor and chairperson.

~~*Note: for double majors in Molecular Biology and Microbiology: Elective courses that count toward one degree cannot be counted as a science elective in the second degree.*~~

Available via distance: 50% or more of curricular requirements cannoy be completed via distance
Geographical Area: Moscow
Rationale: BIOL 115 and 115L were recently separated into two courses. This change reflects the department's intent for all of our major degrees to require a minimum grade of "C" in the introductory sequence.

The department now offers both a 301 (non senior experience) and 401 (senior experience) course for undergraduate research. Both are acceptable for this requirement.

This double-counting change makes options for double majors within our department's major degrees of study consistent across all majors.

7. Make the following curricular changes to the **Microbiology Minor:**

BIOL 115	Cells & the Evolution of Life	3
BIOL 115L	Cells & the Evolution of Life Lab	1
BIOL 250	General Microbiology	3
BIOL 255	General Microbiology Lab	2
BIOL 380	Biochemistry I	4
Select three courses from the following:		**9-10**
BIOL 416	Systems Biology	
BIOL 432	Immunology	
BIOL 433	Pathogenic Microbiology	
BIOL 447	Virology	
BIOL 485	Prokaryotic Molecular Biology	
BIOL 487	Eukaryotic Molecular Genetics	
FS 416	Food Microbiology	
~~PLSC 440~~	~~Advanced Laboratory Techniques~~	
~~PLSC 488~~	~~Genetic Engineering~~	
SOIL 425	Microbial Ecology	
Total Hour		~~**18-19**~~**22-23**

Courses to total ~~18~~22 credits for this minor

Available via distance 50% or more of curricular requirements cannot be completed via distance
Geographical Area: Moscow
Rationale: No additional workload as all courses are already taught. This is simply an update as to the most appropriate course selections for this minor.

CHEMISTRY

1. Change the following courses:

CHEM 111 ~~Principles of~~ General Chemistry I
3 credits
Gen Ed: Natural and Applied Sciences
Full credit may be earned in only one of the following: CHEM 101, or CHEM 111. Note that grades in CHEM 111 will supersede any grades earned in CHEM 101. Intensive treatment of principles and applications of chemistry. Recommended Preparation: A grade of 'B' or better in a high school chemistry course.
Prereq: min 580 SAT math or min 25 ACT math , or min 46 ALEKS; or a grade of 'C' or better in CHEM 101, MATH 143, MATH 160, or MATH 170; or Permission

Available via distance: No
Geographical Area: Moscow
Rationale: The change to the title is in order to comply with a mandate on common course numbers and titles from SBOE.

CHEM 111L ~~Principles of~~General Chemistry I Laboratory
1 credit
Gen Ed: Natural and Applied Sciences
This is the companion laboratory course to CHEM 111 and provides an intensive treatment of Chemistry lab practices. One 3-hour lab a week.
Prereq or Coreq: CHEM 111

Available via distance: No
Geographical Area: Moscow
Rationale: The change to the title is in order to comply with a mandate on common course numbers and titles from SBOE.

CHEM 112 ~~Principles of~~ General Chemistry II
~~4~~3 credits
Gen Ed: Natural and Applied Sciences
Continuation of CHEM 111. Some work in inorganic chemistry, kinetics, equilibrium, liquids, solids, acid-base, electrochemistry, nuclear chemistry, thermodynamics, and qualitative inorganic analysis. ~~Three lecture and one recitation.~~
Prereq: CHEM 111 and CHEM 111L or Permission.

Available via distance: No
Geographical Area: Moscow
Rationale: In past years, Chem 112 was offered as an intact, 5 credit course offering 3 hours of lecture, 1 hour of recitation and 3 hours of lab.
During the current 2018-2019 academic year it was split into two courses, Chem 112, the 3 hour lecture with 1 hour recitation, and Chem 112L, which was meant to be a 2 credit course including the 1 hour recitation and 3 hour lab.
Unintentionally, the credits were split in reverse of the department's intention and given 4 credits (3 lecture, 1 recitation) to Chem 112 and 1 credit (3 hour lab) to Chem 112L.
The recitation hour was always meant to be connected to the lab and each lab should have an hour of recitation. This change is done to correct the mistake and establish the initial intention.
The change to the title is in order to comply with a mandate on common course numbers and titles from SBOE.

CHEM 112L ~~Principles of~~ General Chemistry II Laboratory
~~1~~2 credit
Gen Ed: Natural and Applied Sciences
This is the companion laboratory course to CHEM 112 and teaches Chemistry lab practices in inorganic chemistry, kinetics, equilibrium, acid-base, electrochemistry, thermodynamics, and qualitative analysis. One 3-hour lab and one recitation hour a week.
Prereq or Coreq: CHEM 112

Available via distance: No
Geographical Area: Moscow
Rationale: In past years, Chem 112 was offered as an intact, 5 credit course offering 3 hours of lecture, 1 hour of recitation and 3 hours of lab.

During the current 2018-2019 academic year it was split into two courses, Chem 112, the 3 hour lecture with 1 hour recitation, and Chem 112L, which was meant to be a 2 credit course including the 1 hour recitation and 3 hour lab. Unintentionally, the credits were split in reverse of the department's intention and given 4 credits (3 lecture, 1 recitation) to Chem 112 and 1 credit (3 hour lab) to Chem 112L.
The recitation hour was always meant to be connected to the lab and each lab should have an hour of recitation. This change is done to correct the mistake and establish the initial intention.
The change to the title is in order to comply with a mandate on common course numbers and titles from SBOE.

GEOGRAPHY

1. Add the following course:

   GEOG 488 Geography of Energy Systems
   3 credits
   This course examines geographic dimensions associated with the production, distribution, acquisition, consumption and storage of energy. Geographic tools and techniques will be used to analyze, understand and deconstruct complexity and nuance across various modes of production, current topics and challenges along with future considerations such as transitioning to renewable energy sources. The course will split time between classroom settings, field trips to energy installations on campus and across the inland Northwest, in addition applied learning activities.

   Available via distance: No
   Geographical Area: Moscow
   Rationale: This new offering addresses the current dearth of courses investigating various spatial dimensions of energy at the University of Idaho. Specifically, the course will engage social science approaches and utilize geographic tools and techniques. Both the social science approach and use of spatially explicit tools and techniques are currently not offered at the University of Idaho. This course will be offered by a new faculty member in the department in a topic central to the faculty member's research agenda. No workload will be added to the department resulting from this course add.

2. Reactivate the following course:

   GEOG 440 Geoeconomics ~~Alternative Spatial Economy~~
   3 credits
   Course will explore the relationship between economy, geopolitics and foreign policy using alternative approaches to neoclassical economics and classical economic geography at the global and regional scale ~~useful in economic geography~~. Steady state economy, New-Keynesianism, dependence and uneven development, the world-systems perspective, evolutionary economics and Marxist perspectives are presented. Cooperative: Open to WSU degree-seeking students.

Prereq: ~~GEOG 345 or GEOG 350 or Permission of Instructor~~ GEOG 260, 345 and STAT 251 or Permission of Instructor

Available via distance: No
Geographical Area: Moscow
Rationale: The world is changing. The liberal international order is in disarray and there is rising influence from geopolitical actors using a wide variety of strategies to enact policy across territorial borders. Geoeconomics is a relatively new approach to the use of economy to engage geopolitical interests and goals. Geoeconomics is a political-economic perspective that is increasingly driving geopolitical engagement and conflict by other means. It is also a driver of differential economic investment and development for political purposes. The study of long cycles such as Kondratieff cycles of capital accumulation and concentration and hegemonic power cycles are becoming extremely important as great power conflict, periods of state concert and global war are statistically tied to secular trends. Understanding how states react using geoeconomics to enforce interests is crucial to an understanding of both state-level and global events.
This course will support needs in geography, the International Studies program and political science.
There will be no change to the department workload.

3. Change the following courses:

GEOG 402 GIS Skills Development
1-3 credits, max 6
Hands-on skills development in GIS and related technologies. Primary topics vary by semester, but may include topics such as GPS/GIS integration, web-based ~~server~~ GIS, project management and cartographic design. May be taken for credit multiple times.

Available via distance: Yes
Geographical Area: Moscow
Rationale: New description better reflects current GIS state of the art in techniques and topics students may wish to learn. Changes to credits and description will make the course more flexible for student educational needs and credit loads. Course modification should not substantially increase overall workload.

GEOG 479 GIS Programming
3 credits
~~An introduction to the use of programming languages, such as Python with standard ArcGIS concepts.~~ This course introduces students to basic computational concepts using Python, an object-oriented scripting language, for data processing, analysis and application development. Contemporary research in analytical geography has placed an increasing demand on the computational skills of its practitioners. The advances in spatial data analysis and geographical modeling have also largely out-paced the capabilities of standard statistical software. At the same time, the multidisciplinary nature of the spatial sciences often translates into the need to deal with disparate data sources, formats and programming languages. As such, students

undertaking research are often confronted with a daunting set of tasks that are seldom covered in an integrated fashion in course work. This course is designed to address this situation.
Prereq: GEOG 475 ~~or GEOG 390.~~or by instructor permission

Available via distance: No
Geographical Area: Moscow
Rationale: The purpose of this course is to introduce students to basic computational concepts for geospatial data processing, analysis, and application development. The previous prerequisites are GEOG 475 and GEOG 390. This is a course newly taught by a new faculty member. Upon review of the course materials, the instructor determined that GEOG 390, which addresses Cartographic Design & Geovisualization and does not cover topics that prepare students well for this course (GEOG 479), should not be a requirement. GEOG 475 should still be listed as a prerequisite because students are expected have a fundamental understanding of GIS principles, concepts, and methods. There will be no impact to faculty workload.

GEOLOGICAL SCIENCES

1. Change the following courses:

GEOL 102 Historical Geology
3 credits
Gen Ed: Natural and Applied Sciences
Evolution of the physical earth, plants, and animals; techniques used in interpretation of geologic history. ~~Three lec and 2 hrs of lab a wk;~~ Includes one 1-day field trip.
Coreq: GEOL 102L or permission

GEOL 102L Historical Geology Lab
1 credit
Gen Ed: Natural and Applied Sciences
Evolution of the physical earth, plants, and animals; techniques used in interpretation of geologic history. ~~Three lec and 2 hrs of lab a wk; one 1-day field trip.~~

Available via distance: Yes
Geographical Area: Online
Rationale: The online section of this course has a completely integrated lecture and lab. Laboratory specimens (minerals, fossils etc.) are sent out as kits to online students. Thus, students in the online section of the course need to register simultaneously for the lecture Geol 102 and the lab Geol 102L. Almost all on-campus students in the live section take the lecture and lab simultaneously. However, in the past when enrollments were much higher, scheduling difficulties made it necessary for some students to take the lab in a semester after they took the lecture. This is a very rare occurrence now, but we specifically request that the "or permission" be stated explicitly in the coreq for the occasional live student who has this scheduling problem.

GEOL 423 Principles of Geochemistry
3 credits
Physiochemical principles applied to geologic processes. Topics covered include atmospheric geochemistry, environmental geochemistry, aqueous geochemistry, crystal chemistry, radiogenic and stable isotopes. ~~Two lec and one 2-hr lab a wk.~~ These topics provide an overview of the principles of physics and chemistry that define geochemistry and its use to understand Earth's geology. The objective of this course is to learn how geochemical processes control the distribution of elements from the core of the Earth to the atmosphere. 3-hr lec per week, and one three-day field trip.
Prereq: GEOL 249.

Available via distance: No
Geographical Area: Moscow
Rationale: The online section of this course has a completely integrated lecture and lab. Laboratory specimens (minerals, fossils etc.) are sent out as kits to online students. Thus, students in the online section of the course need to register simultaneously for the lecture Geol 102 and the lab Geol 102L. Almost all on-campus students in the live section take the lecture and lab simultaneously. However, in the past when enrollments were much higher, scheduling difficulties made it necessary for some students to take the lab in a semester after they took the lecture. This is a very rare occurrence now, but we specifically request that the "or permission" be stated explicitly in the coreq for the occasional live student who has this scheduling problem.

GEOL 431 Chemical Hydrogeology
3 credits
Joint-listed with GEOL 531.
An exploration of low temperature, aqueous geochemistry principles through examination of atmospheric, geologic, and biologic influences on water chemistry in surface and near-surface hydrologic environments. For graduate credit, students are required to complete an additional independent research paper or presentation. Recommended preparation: GEOL 423.
Prereq: CHEM 111/CHEM 111L .

GEOL 531 Chemical Hydrogeology
3 credits
Joint-listed with GEOL 431.
An exploration of low temperature, aqueous geochemistry principles through examination of atmospheric, geologic, and biologic influences on water chemistry in surface and near-surface hydrologic environments. For graduate credit, students are required to complete an additional independent research paper or presentation. Recommended preparation: GEOL 423.
Prereq: CHEM 111/CHEM 111L .

Available via distance: No
Geographical Area: Moscow
Rationale: This is (we believe) an editorial change to correct something from a previously submitted and approved request. Due to an oversight, the previous forms for 431 and 531 had different course titles (Chemical Hydrology vs

Chemical Hydrogeology). The desired course title is Chemical Hydrogeology for both courses. No other changes are being requested.

MATHEMATICS

1. Add the following course:

MATH 559 Algebraic Number Theory
3 credits
Dedekind rings, algebraic integers, prime ideals and their splittings, decomposition group, inertia group, ideal class group, quadratic extensions and cyclotomic extensions. Some class field theory, including Frobenius automorphism, Artin automorphism, Hilbert class field, adéles and idéles.
Prereq: MATH 557 or permission

Available via distance: No
Geographical Area: Moscow
Rationale: This is basic background material for any student conducting research in number theory, and can be useful to students studying related topics in algebra, and is part of the regular graduate offerings at many PhD-granting institutions. The intention is to alternate this course in the spring with Math 558 (Introduction to Algebraic Geometry), so that each will be taught once every four years.

2. Change the following courses:

MATH 123 ~~Mathematics Applied to the Modern World~~Math in Modern Society
3 credits
Gen Ed: Mathematics
Discussion of some aspects of mathematical thought through the study of problems taken from areas such as logic, political science, management science, geometry, probability, and combinatorics; discussion of historical development and topics discovered in the past 100 years.

Available via distance: Yes
Geographical Area: Engineering Outreach
Rationale: These changes are due to the statewide development of a common indexing convention for a course set of curricula offered in the General Education Matriculation.

MATH 143 ~~Pre-calculus Algebra and Analytic Geometry~~College Algebra
3 credits
Gen Ed: Mathematics
Carries no credit after MATH 160 or MATH 170; carries 2 credits after MATH 137. Algebraic, exponential, logarithmic functions; graphs of conics; zeros of polynomials; systems of equations, induction. Taught using the Polya Math Center, a studio environment featuring group study, one-to-one interaction with instructors, computer-mediated modules, and lectures.
Prereq: Sufficient score on SAT, ACT, or math placement test; or MATH 108 with grade of C or better. It is recommended that MATH 143 be taken within two years of passing MATH 108 or its

equivalent. Required test scores can be found here:
http://www.uidaho.edu/registrar/registration/placement.

Available via distance: Yes
Geographical Area: Engineering Outreach
Rationale: These changes are due to the statewide development of a common indexing convention for a course set of curricula offered in the General Education Matriculation.

MATH 170 ~~Analytic Geometry and~~ Calculus I
4 credits
Gen Ed: Mathematics
Carries 2 credits after MATH 160. Functions, limits, continuity, differentiation, integration, applications, differentiation and integration of transcendental functions. Primarily for students in engineering, mathematics, science or computer science.
Prereq: MATH 143 (with a grade of C or better) and MATH 144 (concurrent enrollment in MATH 144 is allowed although it is recommended that students complete MATH 144 before enrolling in MATH 170); or demonstrated proficiency through a sufficiently high score on the ACT, SAT, or math placement test. Required test scores can be found here:
http://www.uidaho.edu/registrar/registration/placement.

Available via distance: Yes
Geographical Area: Engineering Outreach
Rationale: These changes are due to the statewide development of a common indexing convention for a course set of curricula offered in the General Education Matriculation.

MATH 175 ~~Analytic Geometry and~~ Calculus II
4 credits
Gen Ed: Mathematics
Differentiation and integration of transcendental functions, integration techniques, general mean value theorem, numerical techniques, and series.
Prereq: MATH 170 with a grade of C or better.

Available via distance: Yes
Geographical Area: Engineering Outreach
Rationale: These changes are due to the statewide development of a common indexing convention for a course set of curricula offered in the General Education Matriculation. The name of Calculus I was changed and so we request to change Calculus II and Calculus III to match.

MATH 275 ~~Analytic Geometry and~~ Calculus III
3 credits
Gen Ed: Mathematics
Vectors, functions of several variables, and multiple integration.
Prereq: MATH 175.

Available via distance: Yes
Geographical Area: Engineering Outreach
Rationale: These changes are due to the statewide development of a common indexing convention for a course set of curricula offered in the General Education Matriculation. The name of Calculus I was changed and so we request to change Calculus II and Calculus III to match.

STATISTICAL SCIENCE

1. Change the following course:

STAT ~~407~~438 Experimental Design
3 credits
Joint-listed with STAT 507
Methods of constructing and analyzing designs for experimental investigations; analysis of designs with unequal subclass numbers; concepts of blocking randomization and replication; confounding in factorial experiments; incomplete block designs; response surface methodology. Additional work required for 500-level credit. Cooperative: Available to WSU degree-seeking students for credit.
Prereq: STAT 431

Available via distance: No
Geographical Area: Moscow
Rationale: Currently, STAT 407 has a prerequisite of the higher-numbered STAT 431 which seems odd. Note: the joint-listed course STAT 507 will retain its current number, so the joint listing will now be STAT J438 / J507

2. Make the following curricular changes to the **Statistics Major, General Option** (B.S.):

A. General Option

~~MATH 415~~	~~Cryptography~~	~~3~~
STAT 301	Probability and Statistics	3
STAT 407	Experimental Design	3
STAT 422	Sample Survey Methods	3
STAT 431	Statistical Analysis	3
STAT 436	Applied Regression Modeling	3
STAT 407	Experimental Design	3
STAT 451	Probability Theory	3
STAT 452	Mathematical Statistics	3
Select two of the following:		6
CS 120	Computer Science I	
STAT 426	SAS Programming	
STAT 427	R Programming	

Other approved courses		
Select 12 credits from the following:		12
CS 479	Data Science	
MATH 310	Ordinary Differential Equations	
MATH 428	Numerical Methods	
MATH 437	Mathematical Biology	
MATH 438	Mathematical Modeling	
MATH 471	Introduction to Analysis I	
MIS 455	Data Management for Big Data	
STAT 456	Quality Management	
STAT 514	Nonparametric Statistics	
STAT 517	Statistical Learning and Predictive Modeling	
STAT 535	Introduction to Bayesian Statistics	
Total Hours		**45**

Courses to total 120 Credits for this degree

Available via distance: More than 50% but less than 100% of curricular requirements can be completed via distance
Geographical Area: Moscow
Rationale: This proposal removes Math 415 (Cryptography) as a required course in the General Option of the Statistics BS. This should have been done last year when the new Statistics degree was created by essentially moving two existing options in the (pre-2018) Mathematics BS. This course (Math 415) was in that curriculum only as the way for students to meet the senior experience General Education requirement. The content is not really relevant to the Statistics degree.