State Scholars Core Courses

English – 4 Years

English I, English II, English III, English IV

Mathematics – 3 Years

Algebra I, Geometry, Algebra II

Science – 3 Years

Biology, Chemistry, Physics

Social Studies – 3 ½ Years

Chosen from U.S. History, World History, World Geography, Economics, Government

Languages – 2 Years

2 years of a language other than English

Wyoming P-16 Education Council

P.O. Box 1766
Laramie, WY 82073

SSI is administered by the Western Interstate Commission for Higher Education (WICHE), based in Boulder, CO, and funded by the U.S. Department of Education under the Carl D. Perkins Vocational and Technical Education Act of 1998 at $6.6 million. | The work reported herein was supported under State Scholars Initiative, PR/Award Number (V051U050006) as administered by the Office of Vocational and Adult Education, U.S. Department of Education. | However, the contents do not necessarily represent the positions or policies of the Office of Vocational and Adult Education or the U.S. Department of Education, and you should not assume endorsement by the Federal Government.

A MEMBER OF THE STATE SCHOLARS INITIATIVE NATIONAL NETWORK

Features of Secondary School and Postsecondary Science Courses

Feature	Typical secondary school science course	Typical entry-level postsecondary science course
1. Total instructional time for a typical course	Year-long classes have about 180 class sessions of 55 minutes each or 90 class sessions of 85-90 minutes each. Assemblies, testing, and abbreviated schedules affect instructional time. Semester courses are not as common but have about 90 class sessions of 55 minutes or 45 sessions of 85-90 minutes each.	Thirty 75-minute or forty-five 50-minute lecture sessions and twelve to fourteen 3-hour lab/discussion sessions are spread over 15 weeks, at most 30 percent of the instructional time of a typical secondary school course.
2. Textbook costs paid by student	$0 Students may be charged for lost or damaged books. Occasionally, lab fees for supplies are assessed.	$10-$170 for a new textbook; $75-$120 for a used textbook (if available); $40-$60 for electronic textbooks (if available), $20-$30 for a laboratory manual. Students may sell back textbooks for partial reimbursement. Community colleges report $70-100 lab manuals.
3. Extra help in understanding course content	Teachers typically structure instruction to provide in-class time for individual needs, sometimes during lab sessions. Many schools have a resource period when students may visit the teacher. Students also see teachers before and after school and during lunch. Lab make-ups must be formally structured and can usually be done with a group. One school reports Thursday evening tutoring. Extra help may be arranged by the school with tutors assigned for special needs students.Teachers do not have office hours.	Individual sessions with instructors are available during office hours; individual sessions with graduate teaching assistants are available during office hours; some university courses provide supplemental instruction held several times each week. Students must initiate help sessions. Group study is encouraged and facilitated. Community colleges offer free peer tutoring for many science classes.
4. Instructional methods	A wide range of class size occurs, from a low of 10 students to a high of 32. Typical size is 20. Some lecture/demonstration is given along with significant hands-on time. Observation, discovery and write-ups of experiments are expected. Computer lab time is often used for the writing and research components.	Lectures are given with varying levels of active learning; typically “clickers” are used (class size often between 100-270 students); laboratories (15-25 students) include hands-on activities led by graduate teaching assistants; discussions (15-25 students) focus on problem sets, often in group settings. Science labs are taught by graduate teaching assistants or instructors.
5. Instructional emphasis	The goal is to use the scientific process to connect knowledge of scientific concepts with the problem at hand, design procedures to find an answer to the problem, investigate phenomena through data collection, and construct meaning through the use of evidence and logic. Some teachers use lab manuals and guided lab setups.	Important goals are the following: mastery of concepts, application of concepts to new situations, making connections between concepts, and synthesizing ideas; problem solving and critical thinking using quantitative skills including quantitative analysis and graphical representation and interpretation; development of communication skills; development of research skills–how to think and act like a scientist.

WYOMING STATE SCHOLARS INITIATIVE
A SCHOLAR TODAY ... A SUCCESS TOMORROW!

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Features of Secondary School and Postsecondary Science Courses

Feature	Typical secondary school science course	Typical entry-level postsecondary science course
6. Use of technology	Computer modeling may be used for science processes, research and projects. Technology may include probes, graphing calculators, Smart Boards, digital field equipment, word processing software, presentation programs for write ups and public presentations, Vernier software. Some districts are moving toward issuing computers to students.	Content is often presented with a wide range of technologies; "clickers" are often used in lecture; online quizzes and/or problem sets may be completed outside of class; a wide variety of technologies is used in laboratories including computers and a range of scientific equipment.
7. Homework assignments and their evaluation	A wide range of homework is reported, from rare to regular. One-to-two homework assignments per week is common practice. Homework is an extension of classroom instruction. Course projects and lab make-up are typical homework assignments. Homework may include several 5-10 page papers a year, shorter reports on current events, study for quizzes and tests.	Two-to-three hours of studying are expected outside of class for every hour in class. Structured and unstructured reading is expected outside of class. Sometimes weekly homework is completed on-line, and it may be graded by the computer. Some homework is assigned from laboratories. Group work and evaluation are common in laboratory and discussion sessions. Completion of ungraded homework/problem sets is expected to aid learning. Oral and written reports/lab reports are common in laboratory and discussion sessions.
8. Quizzes (1-or-2 item assessments of key concepts)	A wide range is reported. Typically, one or two quizzes per week are given on key terminology and key concepts.	Lecture classes often do not have formal in-class quizzes, but "clickers" are used almost daily in large lectures as a means of formative assessment, and online quizzes may be utilized; laboratories and discussion sessions often hold quizzes each week.
9. Session-long evaluations	End-of-unit or chapter tests that are based upon performance or observation are given typically every two-to-three weeks.	Two-to-six session-long lecture exams, including the final exam, are given, sometimes in a large exam setting; lecture exams are typically a combination of multiple choice and short answer questions; exams are often cumulative in nature; laboratories hold a midterm and final laboratory exam; exams cannot be retaken to improve a score.
10. Basis of final grade assigned	Points are assigned for each quiz, lab activity, and assignment with the value matched to importance. The grade is an average of these points. End-of-unit tests are assigned the most points. Policies for extra credit vary. Some lab work can be resubmitted.	Final grades are primarily determined by lecture and lab exams, laboratory activities, with a small percentage coming from lecture activities (i.e., clickers and on-line quizzes). Most often, no extra credit is offered. Lecture typically counts for 70-75% of the course grade and laboratory 25-30%.
11. Instructor's extra-class responsibilities	Sponsoring student organizations and social events; communicating with parents by phone, mail, computer or at school events; conducting routine school duties such as bus and hall duties, lunch help, teacher leader and team meetings, parent conferences, accreditation tasks, committee work; participating in school and district professional development activities.	Instructors and graduate teaching assistants hold office hours outside of class to answer student questions. Often, 50-65% of faculty time is spent on non-teaching activities, including administration, research/professional development, service to the university and broader community, and student advising.