

BOARD OF REGENTS
BRIEFING PAPER
***Handbook* Revision, ACT Scores and Placement into College-Level Courses**

BACKGROUND & POLICY CONTEXT OF ISSUE:

Current Board policy sets forth the test benchmarks or placement scores for placing students into college-level English and mathematics courses (*Title 4, Chapter 16, Section 1* of the *Handbook*). The current policy includes placement scores for various tests including ACT, SAT and Accuplacer. The placement scores in this policy are consistent with the current college-ready benchmarks published by ACT and SAT based on historical testing data.

In 2013, the Nevada Legislature passed Assembly Bill 288, which revises the criteria for high school graduation. The new criteria include a requirement that all 11th grade students take a College and Career Readiness (CCR) Assessment selected by the State Board of Education. The bill further requires that the information from the CCR be used in a manner that allows students to review the areas of their academic strengths and weaknesses, including where additional work is necessary to prepare for college and career. Earlier this year, the State Board of Education selected the ACT as the 11th grade CCR assessment to be administered statewide to 11th grade students in the 2014-15 school year (targeted date: April 2015). The high school graduating class of 2016 will be the first class to participate in statewide administration of the ACT and will begin enrolling in NSHE institutions in Fall 2016.

To provide clear information to students, parents, school counselors and advisors, and other stakeholders, the attached policy proposal requires NSHE institutions to use a student's ACT score to determine whether to place the student into a college-level English or mathematics course. Students who meet or exceed the ACT cut score in mathematics and/or English, who enrolled in English and mathematics in their senior year of high school, and who enroll in an NSHE institution in the academic year following high school graduation, must be placed into a college level mathematics course. This is essentially a guarantee to Nevada high school students that indicates the conditions under which they can be exempted from remediation and placed directly into a college level course.

SPECIFIC ACTIONS BEING RECOMMENDED OR REQUESTED:

Amend *Title 4, Chapter 16, Section 1* of the *Handbook* to require that students who meet or exceed the English or mathematics placement scores for the ACT must be placed into a college-level course in that subject if the student is continuously enrolled in English and mathematics in his or her senior year and if the student enrolls at an NSHE institution within the academic year following high school graduation. (See attached policy proposal.)

IMPETUS (WHY NOW?):

The State Board of Education approved the ACT as the 11th grade CCR in 2014, and it will be administered statewide in Spring 2015 to all 11th grade students. If this proposal is approved by the Board, the impact of a student's ACT score for college can be incorporated into the *NevadaReady!* campaign so that students, parents, counselors, advisors, and other stakeholders will know the impact of the scores and can more effectively plan their senior year (2015-16).

BULLET POINTS TO SUPPORT REQUEST/RECOMMENDATION:

- Students who meet or exceed the cut scores know more than a year before entering an NSHE institution that they will be able to enroll in a college-level course and avoid remediation as long as they enroll in the required courses in their senior year.
- Students who fall below the cut scores will know remediation may be required, but they will have a full year to address the areas of academic weakness and possibly retake the ACT examination in an effort to become college ready.

POTENTIAL ARGUMENTS AGAINST THE REQUEST/RECOMMENDATION:

None have been presented.

ALTERNATIVE(S) TO WHAT IS BEING REQUESTED/RECOMMENDED:

None have been presented.

COMPLIANCE WITH BOARD POLICY:

Consistent With Current Board Policy: Title #_____ Chapter #_____ Section #_____

Amends Current Board Policy: *Title 4, Chapter 16, Section 1*

Amends Current Procedures & Guidelines Manual: Chapter #_____ Section #_____

Other:_____

Fiscal Impact: Yes_____ No

Explain:_____

POLICY PROPOSAL
TITLE 4, CHAPTER 16, SECTION 1
Use of Placement Scores

Additions appear in *boldface italics*; deletions are [~~stricken~~ and bracketed]

Section 1. NSHE [~~Remedial~~] Placement Policy

The [~~remedial~~] *placement* policies of the Nevada System of Higher Education (NSHE) are intended to ensure a foundation of knowledge and competencies that will assist students in successfully pursuing and attaining an academic degree. Students are strongly encouraged to prepare for the rigors of higher education prior to entering the NSHE.

1. Pursuant to federal regulations, institutions may make ability-to-benefit determinations using federally approved tests and passing scores to receive federal student aid. The NSHE reserves the right to cancel the admission or registration of any individual whose attendance at a university or college, in the opinion of the appropriate administrative officer and the President, would not be mutually beneficial, as determined by the ability-to-benefit test, to that individual and the university or college.
2. [~~Placement testing should take place prior to matriculation. Effective Fall 2013, students who complete placement testing and course registration by a deadline set by the institution prior to the beginning of each semester will be guaranteed enrollment to the appropriate English and mathematics course in their first semester of enrollment. Additionally, English and mathematics testing must take place no more than two years prior to matriculation.~~]

Effective Fall 2016, entering students from Nevada high schools will have participated in a statewide administration of the ACT exam in their junior year of high school, and some students may elect to take the ACT exam more than one time. Any student who meets or exceeds the English or mathematics placement scores for the ACT under subsection 4 must be placed into a college-level course in that subject based on the student's highest ACT test score. Institutions may use other factors including high school transcript, grade point average, or additional testing to determine the appropriate first college-level course, or to place a student who did not meet the placement scores under subsection 4 into a college-level course.

This subsection applies only to students who:

- a. Were continuously enrolled in an English and mathematics course in their senior year of high school unless an exception is approved on a case-by-case basis by an NSHE institution; and*
 - b. Enroll in an NSHE institution after high school in any term (summer/fall/winter/spring) during the academic year following high school graduation.*
3. All degree-seeking students must complete the appropriate entry-level English and mathematics course work within the first 30 college-level credits unless otherwise authorized by the institution. *Institutions should support enrollment in the appropriate entry-level, credit bearing college course immediately upon completion of any required remedial work.*
4. *Except as otherwise provided in subsection 2, [A] a student's English and mathematics placement test scores will serve as the foundation for decisions about the appropriate first college-level course. However, in addition to these scores, institutions may rely on other factors such as high school courses and grade point average, demonstrable competencies, and work experience to **determine a student's college-content readiness** [~~predict student success~~] and recommend placement.*

- a. English Placement. The following scores *are minimum scores* ~~[will serve as benchmarks]~~ *on tests a student may take or an institution may administer* for placement into *an entry-level, credit bearing* college ~~[-level]~~ English course. Other appropriate placement tools may be used for English placement including reading tests, departmental diagnostic tests or other proprietary tests if supported by institutional research.

<u>Test Score</u>	<u>Minimum Score</u>
ACT English	18
SAT Critical Reading	440
Compass Writing Skills	69
Accuplacer Sentence Skills	80-86

- b. Mathematics Placement. The following scores *are minimum scores* ~~[will serve as benchmarks]~~ *on tests a student may take or an institution may administer* for placement into *an entry-level, credit bearing* college ~~[-level]~~ mathematics course. Other appropriate placement tools may be used for mathematics placement including reading tests, departmental diagnostic tests or other proprietary tests if supported by institutional research.

<u>Test Score</u>	<u>Minimum Score</u>
ACT Math	22
SAT Math	500
Compass Mathematics	65
Accuplacer College Level Math	50-63

5. Remedial education at NSHE institutions shall utilize instructional methods, *including but not limited to co-requisite models in mathematics and English*, and course designs that are most effective in *ensuring that students are ready for and successful in completing* ~~[assisting students in successfully completing]~~ an entry-level college course in English and mathematics.
6. ~~[Institutions should support enrollment in the appropriate college-level entry course immediately upon completion of remedial work.]~~
- ~~[7.]~~ Requirements for college readiness and college-level course enrollment shall be publicized by each institution to the appropriate Nevada school districts.



**NSHE PARTNERSHIPS WITH K-12
WITH A FOCUS ON
PROGRAMS IN SUPPORT OF
THE STEM PIPELINE**

**Prepared for the Nevada Board of Regents
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Compiled by the
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UNLV

UNLV STEM K-12 STEM Education Programs

Provided below are UNLV's programs that support STEM education pipeline efforts at the K-12 level. Each program is organized to provide the title of the program, the target audience and a brief description of the program.

1) TRiO Educational Talent Search Program (ETS)

Middle and High School students from underrepresented backgrounds

TRiO Educational Talent Search Program (ETS)

The mission of the Educational Talent Search Program is to identify disadvantaged youth with potential for post-secondary education, encourage them to continue and graduate from secondary schools and to enroll in post-secondary education programs. In addition, Educational Talent Search encourages high school dropouts to return to school. Discuss Core Classes & 21st Century Course Study Expectations; Inform/Discuss Magnet Schools; Advise on college bound preparation; Advise on secondary school course selection with emphasis on rigorous classes.

2) GEAR UP (Gaining Early Awareness and Readiness for Undergraduate Programs)

Middle and High School students from underrepresented backgrounds

The mission of GEAR UP is to significantly increase the number of low-income students who are prepared to enter and succeed in postsecondary education. The aim is to help communities create new or expanded school programs and provide educational opportunities for students. Additionally, GEAR UP prompts local schools, community-based organizations, private industry and institutions of higher education to work in partnerships to help students, and their parents, gain needed knowledge and bolster academic programs in their schools. Activities - Automation & Robotics; Energy & the Environment; Green Architecture; Science of Technology; Flight & Space; Design & Modeling; STEM Tutoring & Building Robotics; Future City; STEM field trips; GEAR UP Camp Tour Activities at the UNLV SDM.

3) Upward Bound and Upward Bound Math/Science

High school students from underrepresented backgrounds

The mission of Upward Bound/Upward Bound Math Science is to build, encourage, motivate and create an atmosphere for learning. Upward Bound is an academic enrichment program that opens the windows of opportunity in education via self-empowerment. The Upward Bound Math and Science program is designed to strengthen the math and science skills of participating students. Collaboration with UNLV College of Engineering (Theme: Engineering a Sustainable World); Collaboration with UNLV School of Community Health Sciences; Robotics Class was taught daily during the six week summer residential program by a UNLV graduate student; Math Classes were taught daily by highly qualified high school and college instructors during the six week summer residential program and weekly during the academic year; Career Explorations Class taught during academic year unites students with a variety of STEM professionals and field trip opportunities; STEM Class provides students with hands on activities and instruction aligned with core curriculum standards in biology, chemistry, physics, engineering and math.

4) Educational experiences for K-12 in the Earth and Planetary Sciences

K-12 classrooms, Museums, or similar communities

A set of educational experiences covering subjects in the field of Earth, Planetary, and Space sciences, designed to engage and excite a K-12 audience. The activities are part of a broader, longer term goal to develop a set of activities that include undergraduate and graduate curricula in the space and planetary sciences.

5) Future Healthcare Professionals Day

HS Jrs & Srs interested in pre-professional or professional healthcare related fields & their families

Special program designed for prospective students who are interested in learning about healthcare & pre-professional programs at UNLV. This program includes a presentation by Dr. Nika, head of the pre-professional program, who will give an overview of what is available at UNLV for students who want to go on to a medical program. Information given includes curriculum, community service recommendations, information regarding career paths and earning potential.

6) Future Engineering Professionals Day

HS Jrs & Srs interested in engineering and computer science related fields

Special program designed for prospective students who are interested in learning about engineering programs and scholarships for students in the College of Engineering at UNLV. Students learn about how engineering (civil, mechanical, electrical, computer, computer sciences, construction management) are used in everyday ways and often in the same project (special attention is paid to the Desert Sol project).

7) Rebel Preview (held semi-annually)

HS students and their families

This program is designed for college-seeking high school juniors and seniors but is open to anyone. Participants spend the day at UNLV and learn about the university as a whole and their college/program of interest.

8) Counselor to UNLV Day

HS counselors

CCSD High School Counselors are invited to spend the morning at UNLV. This program is designed to familiarize the counselors with the UNLV admissions process, academic programs and student activities so that they can be equipped with the necessary information to share with their students during the college search process. Additionally, information from special areas is presented each year and the participants take a tour of special areas.

9) UNLV on Display

HS seniors at targeted valley area schools

Seniors learn more about Health Sciences and Engineering majors at UNLV in terms of curriculum and career opportunities. Representatives from the colleges go to the high school and speak with interested students as part of a half day seminar/workshop series that also includes College 101, Admissions and Financial Aid.

10) Campus Tours (STEM specific)

Upon request – typically HS, MS or ES guests that are brought by a program (GEAR UP, Upward Bound, Communities in Schools, Fulfillment Fund, etc.)

Students are led on guided tours that are focused on STEM areas of campus. They are led inside buildings and hear information about what kind of study, research and classes are held in that building and how it is related to specific majors and careers.

11) STEM Workshops

Participating GU Middle Schools

Both on the campus of UNLV and by request in participating MS classrooms, students participate in hands on activities that expose them to STEM learning objectives.

12) Sponsored Field Trips

Participating GU Middle Schools

Students are led on guided tours that are focused on STEM experiences. They learn information about what kind of study, research and classes relate to specific college majors and careers. Trips have included Hoover Dam, Springs Preserve, and the Atomic Testing Museum.

13) Nevada State GEAR UP Coordination at UNLV

7-12th grade students in selected GEAR UP schools statewide

Nevada State GEAR UP (Gaining Early Awareness and Readiness for Undergraduate Programs) is designed to increase the number of low-income students who are prepared to enter and succeed in postsecondary education. Generally, students are identified as GEAR UP during their 7th grade year and exposed to GEAR UP activities that continue through high school. GEAR UP students and families are supported by GEAR UP Ambassadors, professionals from each of the seven NSHE institutions, and SPIFs (Student-Parent Involvement Facilitators), professionals housed at each GEAR UP middle or high school. These efforts include the coordination of the seven GEAR UP Ambassadors; creation and facilitation of professional developments for Ambassadors and SPIFs; direct outreach to students and families through the GoToCollege Ambassadors; creation and dissemination of GEAR UP-specific resources for students, families, and GEAR UP professionals; management of the GEAR UP website and social media; and mass email communication for GEAR UP professionals and community partners.

14) College Application Week

Nevada High School Seniors (and their families)

Nevada College Application Week (CAW) encourages students to take a significant step toward college by providing assistance and building excitement around the application process. CAW is a national initiative spearheaded by the American Council on Education (ACE) with the goal to provide every graduating high school senior the opportunity to apply to college. Special focus is placed on assisting students who may have not otherwise seriously considered applying to college. Assistance and encouragement for students and their families is provided by high school and college staff and community members.

15) GoToCollegeNevada.org Campaign (GoToCollege Ambassadors)

All Nevadans Pre-Kindergarten through 12th grade, their families, and adult learners

The GoToCollegeNevada.org Campaign focuses its efforts to increase the percent of new college entrants, particularly of underrepresented students (low-income, first generation, students of color) in the State. Campaign activities address three main goals: (1) to create a college-going culture; (2) to increase college knowledge; and (3) to increase college participation, financial literacy, and career readiness at high schools (and their feeder middle and elementary schools) with significant numbers of low-income or high-need students.

16) Teacher-Librarian Institute for Integration of Research

Middle and high school librarians

The Institute consists of teacher-librarian pairs from Clark County School District middle and high schools. Teams prepare a proposal for a research-based assignment they would like to implement in the coming school year, and work on that assignment or unit during the Institute with the support of UNLV librarians.

17) Nevada History Day "Night at the Libraries"

Middle and high school students from Clark County School District, as well as their parents and teachers

Working with the CCSD History Day coordinator, librarians at UNLV invite middle and high school students and their parents and teachers to come to the library for two evenings of workshops and consultations on finding and using library sources, including Special Collections, in their research.

18) Rebel STEM Academy

CCSD high school juniors and their teachers

Rebel STEM Academy is a UNLV outreach and recruitment event for high-achieving CCSD juniors in the STEM fields. Students participate in activities such as lab visits and presentations from campus partners. Librarians contributed customized digital learning objects and facilitated active learning activities. A total of 114 students and 22 teachers from 29 schools attended these events, including some national merit scholars.

19) Academic Library Outreach to K-12 STEM Educators

CCSD STEM teachers

This research project focused on the teacher attendees of the Rebel STEM Academy event. Rebel STEM Academy is a UNLV outreach and recruitment event for high-achieving Clark County School District juniors in the STEM fields. Students spend the morning to early afternoon on the UNLV campus, participating in activities such as lab visits and presentations from campus partners throughout the day.

20) Nevada State GEAR UP Program

CCSD 7th and 8th graders

In 2013-2014, librarians met with 200 participants from seven middle schools in the Nevada State GEAR-UP Program, a 7-year grant to help increase the likelihood of college enrollment and success for students in low-income schools. This program has a STEM emphasis. During on-campus visits, librarians engaged students in an active learning activity utilizing an ethnographic model, in which students observed the library space and its use.

21) Historic Landscape of Nevada Digital Collection

Teachers and students in grades 7-12

This online collection of primary sources about landscapes in Nevada's history includes resources for teachers to help them incorporate the materials into their teaching: <http://digital.library.unlv.edu/collections/historic-landscape/educators>. The site focuses on arid ecology and water use.

22) Southern Nevada: The Boomtown Years Digital Collection

Teachers and students in grades 3-12

This online collection of primary sources about the boomtown era of Southern Nevada includes 36 planned teaching activities to help teachers use the site with their students: <http://digital.library.unlv.edu/boomtown/teaching/>. Twelve of the activities relate to science (especially relating to mining, geology, or surveying). The activities encourage analysis of primary source materials through a variety of instructional methods.

23) UNLV MSI Alliance: NV - LSAMP (Louis Stokes Alliance for Minority Participation)

K-12, Current college students and graduate students

UNLV under MSI initiatives is developing a proposal for a 2015 submission through the LSAMP program of the NSF. The focus of this work will include K-12 initiatives, increasing recruitment, retention and graduation of college/university students into STEM and eventually into a national graduate degree program for students pursuing degrees in STEM.

24) Graduate College STEM Doctoral Fellowship Program

New, 1st-year doctoral STEM Science or Engineering women or underrepresented minorities outstanding scholars

The Graduate College established a STEM doctoral fellowship program about a year ago. We offer two incoming doctoral students (women/underrepresented minorities in Sciences or Engineering) two years of fellowship funding each, after which they will be picked up and supported by faculty grants, department funding, etc.

25) Future Healthcare Provider Day

High School Students

Presentations/overview of the pre-health professional program for prospective students and parents. Breakout sessions address specific questions for various fields of healthcare (medicine, dentistry, pharmacy, nursing, veterinary, etc.).

26) Preprofessional High School Program

High School Students

This is a new initiative coordinated by the Honors College.

27) NSHE UNLV GEAR UP Science, Technology, Mathematics and Engineering for Programming and Professional Development for Educators - Southern Nevada - Las Vegas Summer Institute

GEAR UP Middle and High School teachers

The Summer Institutes and Professional Development workshops have been developed for targeted NSHE GEAR UP middle and high school STEM teachers using best practices and based on a needs assessment survey and the integration of Nevada Common Core State Standards (NCCSS).

28) NSHE UNLV GU STEM – UNLV Campus Field Day

Health and STEM Sciences Immersive Learning Experience (HSSILE)

GEAR UP High School Students

NSHE UNLV GU middle and high school parents, students and teachers are invited to UNLV for a showcase which integrates Health and STEM Sciences education across disciplines. The activities and materials at each work station are designed to build interest among the students and are aligned with the Nevada Common Core State Standards.

29) Expect Success Math Bridge Program

UNLV Freshmen (29 credits or less) who do not place into the math requirement for their major

The students work on an online, self-paced adaptive learning platform coupled with live tutorial support over the summer to refresh their math skills in order to test into a credit-bearing math course. In Summer 2014, 93% of participants tested into a college-level math course, with 70% of students testing into the math course required for their major.

30) Early Studies Program - <http://www.unlv.edu/asc/early-studies>

High achieving Nevada High School students

Highly-motivated Nevada high school students have the opportunity to enroll in UNLV courses before high school graduation. Dual credit (university and high school credit) may be earned with approval. These students receive access to resources, such as tutoring, advising and coaching. The program attracts some of the best and brightest students in Clark County and creates a more streamlined bridge from their high school to UNLV.

UNR

University of Nevada, Reno
Programs and Services Supporting STEM Education in K-12

College Readiness/Entry Programs

Dean's Future Scholars (DFS): This is a collaboration with the school district to recruit first generation and underrepresented groups to college.

Latino Research Center Programs: The LRC student group "Beyond Government Aid" program mentors potential first-generation college students in college admission processes. The program teaches practical skills and offers one-on-one guidance to help students navigate higher education processes and improve accessibility. The LRC hosted a class of middle school students who participated in a workshop to introduce them to programming using mathematic concepts. The LRC helped promote Statfest at UNR on July 2014, a full day event supported by the National Science Foundation to showcase the fields of mathematics and statistics to Latino students.

BS-MD Accelerated Pathway Program: High achieving high school students apply to this selective program and attend three years of college at UNR; then are promoted to the MD program. The first year of their medical school coursework transfers back to the undergraduate institution to complete allow them complete their BS degree.

College Math Readiness: Outreach to WCSD is provided by the Math Department to help prepare and remediate WCSD high school students through UNR-coordinated high school implementations of MATH 095 and 096 taught by math teachers to high school seniors and by math placement testing of juniors and seniors.

Bishop Manogue Miner Academy: This program is in development for a magnet at Bishop Manogue High School for students who are interested in careers in mining and earth sciences. Curriculum will prepare students to entry to UNR into degree programs in the Mackay School of Earth Sciences and Engineering.

Spanish Springs HS Signature Academy in Communication: The journalism dean spoke to students at the school about careers. Faculty have worked together on a curriculum to prepare SSSH students for college success.

Academic Programs/Experiences

AP Chemistry Courses: The department partners with WCSD for two AP lab courses, CHEM 121L and CHEM 122L, for high school students. Presently, Davidson Academy and Galena High School are participating.

BUS 104 – Business Exploration: This course is offered to Nevada Future Business Leaders of America (FBLA) state officers; and in the summer to 25–50 Hispanic high school students.

SCI 435/635 STEM Education Outreach Experiences: This proposed new course will provide outreach and service learning opportunities for College of Science students to assist secondary teachers in STEM subjects.

Student Enrichment/Career Exploration Programs

Daugherty Summer Science Exploration: This is a summer STEM one-week experience for middle school students to explore science topics in Biology, Chemistry, Physics, and Seismology.

College of Engineering Summer Camps 2014: In the summer of 2014, 147 students participated in a total of 7 camps, which included Introduction to Engineering, Young Women in Engineering, Civil Engineering, Jumpstart to UAS, 1st Generation College- Bound students in engineering, and two Computer Science Camps.

Academy of Mathematics, Science, and Technology at Bridger Middle School: This program has UNSOM students conducting twice yearly workshops as requested by schools to help students explore health professions.

East Career and Technical Academy (ECTA) and Northwest Career and Technical Academy (NWCTA): UNSOM provides year-long programming for students in the medical career track to include clinical simulation, standardized patient and physical exam skills, health professions information, and clinical problem solving.

Challenger Learning Center of Northern Nevada: Faculty from the Physics Department participate in the operation of this new facility to provide K-12 students in Northern Nevada with opportunities to experience being an astronaut, scientist, engineer or medical team member on simulated missions to the Moon, Mars and beyond.

Sparks High School, Hug High School and Dilworth STEM Academy MESA: The MESA (Mathematics, Engineering, Science Achievement) program works with these schools to provide tutoring and project building sessions, field trips and other opportunities for low income students.

Proctor Hug High School Health Sciences Academy: The School of Medicine and the medical student Medical Education Outreach Committee (MEOC) provide enrichment activities at the high school and bring students to the medical school campus. Activities include health professions information discussions and workshops, anatomy lab tours, clinical simulation activities, college preparation, and test taking strategies.

Engineers Day: COEN runs a daylong event with 400 middle school and high school students who have the opportunity to come to campus and tour 5 different engineering labs.

Area Health Education Center Summer of Discovery: This is a one-week science camp for middle school students from rural Northern Nevada held on the UNR and medical school campus each summer.

Science Partners: This is a 3-credit course for students in the Colleges of Science and Agriculture, Biotechnology and Natural Resources that pairs each student with an elementary school teacher and class in the Washoe County School District for three hours per week to assist in teaching hands-on, inquiry-based science in the classroom.

EarthWatch Outreach: Biology faculty involve students in their research to cultivate a love of science.

Taking Physics on the Road: A travelling bus goes to schools in Nevada to demonstrate physics experiments.

Nevada Seismological Laboratory Outreach: The NSL started the Great Nevada Shakeout in 2010 to raise awareness of earthquake hazards and earthquake safety. Additionally, the department has installed seismometers in a dozen or more K-12 schools throughout the state so that students can identify earthquakes in real-time.

NCLab Summer Camp: This outreach program introduces elementary and middle school aged students to computer programming and 3D modeling.

Jumpstart to UAS Camp 2014 Highlights: Twenty students participated in hands on lessons geared toward developing an interest in the field of Unmanned Aircraft Systems. Students flew a quad copter, blasted bottle rockets, and visited the UAS Command center at the Air National Guard in Reno.

Reed High School HOPE signature academy (focused on health careers): The School of Community Health Sciences provides several talks over the year on all aspects of public health to students.

Innovation Day: The College of Engineering showcased its senior capstone design projects in May 2014. Six hundred high school (mainly STEM academies) and middle school students as well as their teachers attended.

Facilities and Activities Related to Student/Class/Teacher Enrichment

Redfield Observatory: This facility is available to K-12, UNR, and the general public to study astronomy and view the solar system. Telescopes allow observers to explore objects close to Earth as well as in deep-space.

Nevada Terawatt Facility (NTF): The facility provides occasional tours of the facility by high school students.

Museum of Natural History: K-12 students visit the museum and get hands-on experience in a working laboratory. Specimens can also be loaned to teachers. There are animal displays including 2 cases of live insects and regional fish. Behind the scenes, there is an active research collection used by students and faculty.

W.M. Keck Earth Science and Mineral Engineering Museum: The museum houses a collection of minerals, ores, fossil specimens, photographs, and mining related relics. It also partners with schools in Nevada and California to provide standards-based earth science educational tours, hosting approximately 3000 students per semester.

Nevada Seismological Laboratory: Tours of the facilities are given to about 3000 school children per semester.

College of Agriculture, Biotechnology and Natural Resources Facilities: Faculty provide tours and career discussions at Main Station Farm, the UNR National History Museum, Wolf Pack Meats, research labs, and the Valley Road Experiment Station.

Science Olympiad: The University hosts the Science Olympiad competition every year (either Regional or State.) Faculty from various colleges and departments assist in planning and facilitating the event and judging entries.

Nevada Mathematics Project: This is a statewide initiative that aims to improve math instruction and student achievement in K-12 in Nevada. The program focuses on supporting teacher in the progression of mathematics in the 3rd-8th grade curricula. Faculty in the UNR Department of Mathematics and Statistics are participating.

Nevada Bureau of Mines and Geology Outreach: NBMG staff regularly hold teacher education workshops in the earth sciences co-sponsored by the Nevada Mining Association and jointly supported by the Nevada Division of Minerals. The NBMG provides K-12 earth science teacher with resources including mineral and rock specimens.

Molecules on the Road: CABNR faculty offer a one-week program visiting high school teachers and their classes to showcase work on molecular genetics.

School University Partnership for Education and Research (SUPER): The WCSD is an active participant in program design for the College of Education. Numerous meetings take place between school district personnel and UNR faculty on a variety of research interests. The program also works to support elementary and middle school achievement and professional development in schools, and promotes research activities.

GAIN: This is a summer institute in geography for K-12 teacher training.

UTeach Replication: The Colleges of Science, Education, and Engineering are partnering with the WCSD to develop a program to certify students with STEM degrees in secondary science education.

Mobile Engineering Education Lab: The Mobile Engineering Education Lab (Me²L) teaches lessons at 50+ schools and 10+ after school programs every year, reaching students in counties as far as Douglas and Storey.

Sierra Nevada Journeys (SNJ): COEN collaborated with SNJ to offer a workshop titled “Putting the E in STEM,” providing local teachers with information and ideas about teaching engineering in their classrooms.

Learning Resource Center: This library in the College of Education is a result of a collaboration between the school district and UNR to provide learning resources for pre-service and in-service teachers.

Center for Learning and Literacy Tutoring Program: This center offers free tutoring for district students who are tutored by students enrolled in UNR College of Education literacy courses.

NSC

Activities to Support K-12 STEM Education at Nevada State College

Direct Support to CCSD Schools

- I. Creation of Educational Materials: Faculty from NSC's School of Liberal Arts and Sciences and School of Education collaborated to create materials for K-12 students using climate data from the Nevada Experimental Program to Stimulate Competitive Research (EPSCoR) Data Portal (part of the Nevada Experimental Program to Stimulate Competitive Research (EPSCoR). This was supported through a NSF EPSCoR grant to NSHE and subawarded to NSC.
- II. Provision of In-Service Teacher Training:
 - a. NSC School of Education Faculty taught a graduate class in teaching about climate change to in-service secondary level science teachers in Clark County School District from September 2008 to September 2013.
 - b. NSC School of Education Faculty were the Principal Investigators for two NSHE EPSCOR NeCoTip projects (Nevada Collaborative Teaching Improvement Program), which funded the creation, organization and implementation of two-week summer workshops for Clark County School District in-service secondary-level science teachers. The first took place in from 1007-2011 and trained in-service secondary-level science teachers on teaching about local, southern Nevada geology. The second set of workshops took place in 2011 and 2012 and focused on assisting in-service teachers on teaching about climate change using local examples.
- III. The Primes Project: NSC Mathematics faculty have partnered with C.T. Sewell Elementary School to assist the teachers, students and parent transition to the Nevada Academic Content Standards. **With the teachers** the NSC math faculty have provided training, materials (physical manipulatives, worksheets, online and interactive content) and professional development directly to the teachers. They have also helped teacher connect to other resources as they identified a need. **With students** they have increased access to technology so they can use the online content that is developed or identified by NSC faculty and activities that are provided by the publishers of the primary textbook. **With parents** NSC math faculty are creating an online portal using the existing NSC Canvas system to provide an online forum for parents to access course materials. There are plans to provide extra materials that will help parents understand the concepts being taught in the classroom and to enhance their ability to assist their children. They are also creating a discussion board where parents, C. T. Sewell teachers and NSC faculty will all be able to interact.

Pre-Service Teacher Preparation

- I. Pre-service Elementary Teacher Candidates: All elementary and elementary-special education pre-service teacher candidates are required to take:

- a. STEM Mathematics: MATH 122 (Number Concepts for Elementary School Teachers), MATH 123 (Statistical and Geometrical Concepts for Elementary School Teachers), EDEL 433 (Teaching Elementary School Mathematics) which requires design and implementation of instructional activities and to complete 15 hours of mentored field work. As part of the Core NSC curriculum requirement students must successfully complete a three-hour mathematic course, which usually is MATH 120 Fundamentals of College Math.
 - b. STEM Science: Three courses focused on elementary science curriculum standards as outlined by state and national agencies where content is integrated with effective science pedagogy:
 - i. EDEL 441 Standards-based Curriculum-science (Physics Emphasis) lab course 4 credit hours.
 - ii. EDEL 445 Curriculum Development Elementary School Science (Earth Science Emphasis) lab course 4 credit hours. These are unique in that they are highly inquiry based and have both content *and teaching methods*.
 - iii. EDEL 443 Teaching Elementary School Science, 3 credit hours focused on current methods and materials for teaching life, physical and earth science using process skills, guided discovery activities and curriculum integration techniques. Mentored field experience of 15 hours is required in this course.
- II. Pre-service Secondary Teacher Candidates
- a. May major in Secondary Education: Mathematics, or Biology or Environmental Science.
 - b. All Pre-service candidates work with selected Partner Schools with classroom teachers supporting instruction.
 - c. Secondary STEM education courses include EDS 463, Teaching Secondary Science Education. This course emphasizes inquiry, active learning strategies, and has a lot of technology incorporated in the curriculum. In addition to training new teachers, long term substitute teachers make up a high proportion of students in these courses as they come to get certified as teachers and in the process learn how to implement modern pedagogical techniques in STEM education.

Other Support to CCSD Students

- I. Support of Upward Bound Students: Nevada State College had two full-time faculty, along with their pre-service education students, create and run “Science & Math Saturdays” for high school Upward Bound students from four Clark County High Schools. These special STEM-exploration days are taking place on select Saturdays during the 14-15 academic year.
- II. Classroom visits: Several NSC faculty have done outreach to elementary school classrooms to do mini-science lessons.
- III. Science Fair Judging: Several NSC STEM Faculty participate as judges in local science fairs.
- IV. Black Rock Solar Educational Events: Black Rock Solar organizes educational trips to Nevada State College to learn about our installed solar panels. NSC STEM faculty and their students participate in the visit, discuss ongoing research projects, and encourage students consider science careers.

Future Initiatives

- I. NSC is currently in the process of seeking Noyce Scholarship funds through the National Science Foundation: The NSC faculty wrote a proposal seeking funds to identify students who are interested in teaching STEM subjects in K-12 public schools. The grant would provide financial support (tuition and living expenses) for the selected STEM major students during their last two years in college and a stipend to the graduates who become K-12 STEM teachers for three years after graduation.
- II. NSC is considering an overhaul of curriculum, adapting elements of the “U-Teach model” for preparing STEM K-12 teachers: The School of Education faculty are incorporating some and modifying other parts of the U-Teach methods for preparing pre-service STEM teachers. These techniques include: mentoring experiences with master K-12 teachers throughout the four years of college, working with science faculty to include more content, shifting methods instruction into content instruction, and drafting changes to seek State Certification bodies to accept adjusted program.
- III. The School of Education faculty are working on including additional math and science instruction methods for elementary teacher certification candidates program to bolster the strength of elementary STEM education.

CSN

CSN support of STEM education in K-12

The College of Southern Nevada has several strategies to support the Clark County School District in supporting STEM education in the K-12 pipeline.

1. The Deans of Health Science Advanced and Applied Technology, and Business, Hospitality and Public Safety participate with CCSD on Joint Technical Skills Committees which meet 3 times per year. The purpose of these committees is to align career and technical STEM education curriculum between K-12 and post-secondary.
2. Over 700 CCSD students attended the CCSD Health Care Career Fair held on the Charleston campus of CSN in November 2013. These CCSD students are given the opportunity to tour health program laboratories, meet faculty and meet students at CSN in an effort to encourage enrollment at CSN.
3. CCSD students who enroll in career and technical education in the K-12 system and earn the State Certificate of Skills Attainment are given college credit through Tech Prep.
4. The CSN GEAR UP Ambassador Program, in partnership with the Department of Employment, Training and Rehabilitation (DETR) hosted an interactive STEM Conference for approximately 80 middle school students from Jerome Mack Middle School. The objectives of the STEM Conference were to increase STEM college majors and careers and to encourage youth to take college preparatory math and science courses in high school that prepare them for related disciplines in college and beyond. Students had the opportunity to interact with CSN faculty working in STEM fields. The next 1-day STEM Conference focused on robotics and mining careers has been scheduled for February 20, 2015.
5. The CSN GEAR UP Ambassador Program conducted a two day STEM summer bridge camp for 50 high school freshman students in August 2014 and has begun planning the 2nd Annual STEM Summer Camp for July 2015.
6. The CSN Cheyenne campus hosts an annual Science and Technology Expo every spring. Middle school students from CCSD are bused to the Cheyenne campus where they experience many of the STEM programs at CSN. These students have access to faculty, equipment, CSN students and are on a college campus for the day. During the 2014 Expo, approximately 1,000 CCSD students attend every year.

GBC



Summary of Programs and Services Supporting STEM Education in K-12

October, 2014

Great Basin College has 10 school districts within its service area, and the ability to partner with each varies and is evolving. GBC seeks to extend its involvement with STEM-related activities in each district as time, resources, and interest allow. The following is a summary of the activities occurring now.

1. **Dual Credit Online.** GBC has a large array of courses available to students in the online format. Many rural school districts do not have enough students or resources available to offer some higher level mathematics and science courses. The online availability allows students to enroll in courses such as calculus, physics, and computing that are not normally offered at their particular school. Often these students use scheduled times to use computers located on high school campuses to complete these courses. Student often have high school instructors available as tutors to assist them with difficulties. Also, many students utilize a large variety of GBC online courses for non-STEM disciplines. Some delivery is coordinated directly with individual schools, and some is delivered to students working more or less independently.
2. **Dual Credit Partnered Instruction.** At Elko high school, GBC has partnered with the school district and a qualified instructor to teach college chemistry and physics. The courses are taught in the high school using the college syllabus and text in close collaboration with the college instructors. Originally the student fees were paid by the students. The school district is now paying these fees. This approach is also being taken in several non-STEM disciplines at other schools.
3. **CTE College Credit (formerly Tech Prep).** For many years GBC has maintained an extensive list of high school technical courses for which GBC will award college credit. There is a formalized procedure for courses to be eligible and for students to receive their credit.
4. **INBRE Grant.** Using INBRE grant funding, GBC has offered a summer science camp. Each summer 10-15 students from rural locations are brought to the GBC campus for one week and stay in student housing. During the week they are introduced to science and laboratory activities.
5. **NASA Space Grant.** In association with this grant, GBC instructors visit with students in K-12 settings to promote science and technology education and careers.

TMCC

Truckee Meadows Community College
STEM PARTNERSHIPS WITH K-12
October 2014

TMCC works with K-12 in a variety of ways to strengthen the STEM pipeline and to promote interest in careers related to science, technology, engineering, and mathematics. We recruit throughout the community with multiple pathways to transfer programs, degrees, and workforce certificates. But of particular important is our work with area high schools in offering advising, dual enrollment classes, and college credit for technical coursework. Washoe County School District is implementing Signature Academies, and TMCC and the University of Nevada, Reno (UNR) are partnering with these Academies to provide faculty support and college courses in a student's senior year. A particular focal area for TMCC is in technical and allied health fields. These career tracks require strong science and mathematics preparation and result in well-paying jobs for graduates.

The TMCC High School gives us a special opportunity to build STEM interest and knowledge in high school students. TMCC High School students take college science, mathematics and health courses while still in high school.

Student Services

TMCC Success First Program is aimed at increasing college readiness, persistence, retention and graduation rates of first-time, first-generation students. The program utilizes a six-week summer bridge program to give students assistance in beginning college, help them gain information about science, technology, math and engineering fields, and provide academic/motivational support during their first year in college. All participants are required to complete the appropriate mathematics course which accelerates meeting the math prerequisites needed to pursue STEM fields. Participants who successfully complete this program are invited to apply for the following summer National Institutes of Health INBRE Bio-Prep Pipeline Program. Its focus is on increasing first-generation, under-represented populations in the sciences by providing laboratory training and hands-on undergraduate research opportunities.

Sciences

Dr. Lance Bowen, Dean of Sciences, serves on the P-16 Advisory Council of the Education Alliance and is a member of the Nevada STEM Coalition. Additionally, the Chair of the Biology department Dr. Julie Ellsworth, serves on the advisory board and as a yearly volunteer for the Western Nevada Regional Science & Engineering Fair, the K-12 fair held every year at the University of Nevada, Reno, that hosts the winners of school fairs from twelve Nevada counties (<http://www.nevadasciencefair.net/>). She is also linked to the Nevada STEM coalition, through her involvement in the 2009 International Science Fair, Gathering Genius, held in Reno. The coalition grew out of that event. She is not actively involved at the moment, but continues to be a project consultant from time-to-time (<http://www.nvstem.org/>). She has volunteered to help consult with Galena High school on their STEM Academy.

Mathematics: TMCC is participating in UNR's offering Math 95/96 (Elementary and Intermediate Algebra) in the high schools to qualifying students and uses those course completions for placement into college-level mathematics. This year TMCC is also offering Math 126 for AACT High School students at the Edison campus.

Biology: Biology Instructor Dr. Laura Briggs helped arrange for a Davidson Academy student to participate in the cadaver dissection team for two semesters through the INBRE grant and with the help of the Chief of Staff at the VA Hospital. In summer 2014, Dr. Jamie Campbell, TMCC Professor Emeritus, organized the visit of two seventh-grade classes whose students participated in anatomy lab and microscope lab experiences.

Technology

Career and Technical Education: TMCC's Tech Prep/CTE College Credit Program allows high school students to earn college credit while taking approved CTE elective classes in high school. The approved classes are taught by high school teachers in the high school. TMCC currently offers 44 articulation agreements throughout seven counties to give high school students a head start to an associate degree, certificate of achievement, skills certificate or industry credential. The program is funded within the Carl D. Perkins Career and Technical Education Improvement Act of 2006 and is monitored by the Nevada Department of Education. TMCC participates in several other initiatives to expand and enhance offerings in the trades and technical sciences. Dual enrollment programs with ACE Charter High School provide direct college training of high school students in transportation and manufacturing technologies, fulfilling all technical requirements of a Certificate of Achievement for all students who complete three years of instruction in the high school. The college also teaches technical courses at local high schools that lead to dual credit and open additional resources during the evening for traditional students. Additional dual enrollment programs are currently under development in areas including energy technologies and automated systems. The college also played a key role in the development of WCSD's Signature Academies in the technical fields, working to articulate courses that will award college credit to students who fulfill minimum standards.

Graphic Communication: A special collaboration between WCSD and TMCC has been created by faculty that provides curriculum development assistance to high school teachers in areas in which they need technical skill development. TMCC instructors develop a schedule of short, targeted professional development segments offered twice monthly at TMCC or at area high schools. This program regularly brings WCSD high school students to campus to explore graphic communication options.

Allied Health Pathways

Nutrition: NUTR 121 Human Nutrition is taken by many high school students and provides an introduction to the field of dietetics. Students get introductory lab experiences in this course, and some move into the dietetic tech program after taking this course. Dr. Heather Graham Williams recently agreed to serve on the curriculum development team with Karen Chessell from Nevada Department of Education for the Food and Nutrition assessment project for secondary education.

Dental Assisting: The Dental Assisting Program partners with AT&T Pioneers to select an at-risk elementary school each year. The Dental Assisting students are divided into groups and prepare age-appropriate oral health presentations for grades K-2, 3 and 4, 5 and 6. Included in the presentations are discussion of oral care, diet, appropriate levels of microbiology, radiology, and what to expect from the dental team when they visit the dentist. The Pioneers provide oral health sacks for each child in the school that contain a toothbrush, floss, disclosing tablets, a timer, and a booklet of healthy recipes and proper oral care. TMCC has partnered for

the last fifteen years, and to date TMCC students have presented to schools in Washoe, Douglas, Storey and Lyon counties and served 8,000+ elementary school students. This provides an ideal setting to recruit young students into dental fields.

The Dental Assisting program hosted the state Dental Assisting Competition for Nevada high schools in March of 2014 and will most likely host again next spring. TMCC hosted and judged students from Las Vegas, Carson and Reno during the one day event. The student competition was for HOSA (Health Occupations Students of America). Additionally, the Dental Assisting program will participate in the Washoe County Signature Academies. It has hosted tours for ACE High School and tours for male students in Washoe County High Schools interested in "non-traditional" Healthcare and STEM careers with handouts and presentations.

Dental Hygiene: Oral health education presentations are given by students in various K-12 classrooms which offer an opportunity to talk about the field of dental hygiene. TMCC Faculty present at career fairs with Washoe County High Schools and Billingshurst Middle School. They participate with the Operation Healthcare Bound Career Fair each year to discuss the profession of dental hygiene and the courses high school students should take to be prepared for the curriculum of the program.

The dental hygiene students are designing special oral health education programs for target populations of their choice: third grade class at Sun Valley Elementary, Cysis (special program at Washoe High School), and fourth grade classes at Katherine Dunn Elementary in Sparks. The Dental Hygiene Program has hosted tours for male students in Washoe County High Schools interested in "non-traditional" Healthcare and STEM careers with handouts and presentations.

Nursing: Nursing faculty are involved in a variety of activities designed to create interest among K-12 students. As examples, TMCC participates in the Operation Healthcare Bound each year. Students from Reed High School are coming to TMCC this November to learn more about Nursing and other Allied Health programs.

Summary

In conclusion, TMCC is continually searching for more ways to encourage K-12 students to be prepared for and have an interest in STEM fields. We will launch a Jump Start program with WCSD in Spring 2015, modeled on the successful Jump Start program at Western Nevada College. It will offer a variety of courses to high school students as dual credit, meeting high school graduation requirements and college credit. Particularly exciting will be the Community Health Sciences courses: 101 Introduction to Community Health Science and 102 Foundations of Personal Health and Wellness. These two courses open up a new awareness of the many health-related fields for high school students.

TMCC is placing its renewable energy programs at our Redfield Campus to give them a synergy and visibility that will make them more accessible to recent high school graduates. Likewise, on our list of potential new programs in the TMCC Academic and Student Services Planning Report, are eleven programs which we will explore in the coming years, all related to STEM and healthcare workforce areas.

WNC

Western Nevada College – Programs to Support K-12 Education

In addition to a range of smaller initiatives and single faculty or staff projects, Western Nevada College has three substantial programs that are directly tied to K-12 education within our service area: Jump Start College, Aspire High School, and Carl Perkins Tech Prep. A one page description of the efforts completed under WNC's Perkins funding is attached.

Jump Start College: Jump Start is a dual-credit partnership between eleven area high schools and Western Nevada College created to allow students to complete core college requirements simultaneously with completion of a high school diploma. The goal is to increase the rate of degree attainment for students in the WNC service area. Currently in its pilot year, we initially planned to serve fifty students; high school demand dictated otherwise and we are serving almost 200 students this year. All indications suggest that Jump Start will serve more than 400 students in 2015-16.

While the program was customized for each school district, the typical Jump Start student will take the following courses:

Fall 2014:

English 101
Math 126 (Pre-calculus)
History 101 (U.S. History to 1865)
Communications 101

Spring 2015:

English 102
Math 127 (Trigonometry)
History 102 (U.S. History from 1865 – Present)
Psychology 101

Students in Jump Start are grouped by cohort in dedicated classes. Each cohort has a “teaching assistant” who earned a “B” or better in both English 102 and Math 126. The teaching assistant provides academic and college success support as well as supplemental instruction.

Eligibility for the Jump Start program requires a grade of “C” or better in both semesters of high school Algebra II, and a score of “5” or better on the Accuplacer Essay test. While the program was originally envisioned to serve high school seniors, three schools allowed juniors to participate this year and nine schools will in 2015-2016. Students who begin the program as juniors have the opportunity to earn an associate degree simultaneously with the high school graduation. New additions to the Jump Start program for 2015-16 include a charter school, a private high school, and a Tribal high school, for a total of 14 high schools in 6 school districts.

Aspire High School: The WNC Douglas Campus has served students in Douglas County for seventeen years. Enrollment trends over the past four years showed a strong prevalence for night courses, leaving the campus severely underutilized during daytime hours. The Douglas County School District approached WNC

with a request to share the space with the Aspire High School. Aspire now uses the Douglas campus from 7am to 2 pm, and pays WNC an amount equal to the rent they were paying at their previous site. By sharing the available resources both Douglas County School District and WNC can be more financially efficient. Of greater importance is the approximately 100 students in Aspire who now have daily access to a college level learning environment. Since many of the Aspire students would be first generation college students, if they chose to attend college at all, the continuous exposure to a college learning environment is a priceless experience for them and a valuable recruitment tool for WNC.

Examples of other projects and initiatives:

1. WNC Observatory: The WNC Observatory works with regional high school students in multiple astronomy-related projects. Project RECON allows Carson City High School students the opportunity to work in a National Science Foundation funded research project to track asteroids and trans-Neptunian objects. A similar project allows high school students the opportunity to develop skills in astrophotography, and has been selected by multiple CCHS students as part of their senior project.
2. K-12 Science Demonstrations: Physics instructor Tom Herring provides a series of science demonstrations at regional K-12 schools each year, including Yerington Intermediate, Yerington High, and Mark Twain Elementary schools this fall.
3. End-of-Program Assessment Design: Industrial Technology instructor Emily Howarth participated in the writing of the end-of-program exam for Electronics Engineering for the Nevada Department of Education.

Kevin Edwards – Career and Technical Education (CTE) College Credit Coordinator

Diane Nungary – Perkins Grant Manager

The Carl Perkins Tech Prep, Basic, and Competitive grant programs includes multiple stakeholders. The stakeholders are students, parents, teachers, counselors, administrators, secondary schools, post-secondary schools, legislators, economic development agencies, business/industry leaders and the Nevada Department of Education. Stakeholders are linked by the development, support, and enhancement of programs of study that create a career pathway for students. Multiple stakeholders are crucial to assure purposeful curricular structure and purposeful substance for teaching and learning. Students must be able to connect school with their real-life experiences and their real-life experiences with school. These experiences lead students toward skill attainment for a certificate, degree, industry credential and/or employment.

- **Coordinate Western Nevada College CTE Regional Consortium and Student Outreach**
 - Coordinate WNC Career and Technical Regional Consortium meetings two times per year, which includes WNC CTE Faculty, HS Faculty, counselors and administrators.
 - Participate in WNC, high school, school district, and NDOE level CTE development meetings to streamline CTE program/career pathways.
 - Facilitate Tech Prep Articulation meetings based on a program and instructor demand.
 - Perform Fall Semester high school site and classroom visits to promote WNC career and technical degree program opportunities to students within each school and each CTE program area.
 - Provide WNC campus tours and student services to local and regional educational programs/agencies.
 - Represent WNC, CTE, and early college credit opportunities at many different college and career events throughout the year.
 - Distribute print media and promote social media information for career and technical/STEM programs of study
 - Execute the CTE College Credit eligibility process during Spring Semester by meeting HS students to discuss career interest and future academic plans.
 - Assist CTE HS seniors that choose WNC to ensure seamless transition.

- **Noteworthy accomplishments from the past 5 years**
 - Fall 2009 – Organized and hosted, Career Pathways Leadership Certification – Two Day Professional Development Event.
 - Fall 2012 – Research and development of WNC Career Pathways roadmap graphic identity – Using a visual, ladder approach, career pathways connect levels of education and attainment of industry certifications to the resulting types of jobs that the students can expect to find.
 - Fall 2012 – Formal high school implementation of a General Industrial/Automated Systems, WNC CTE Fast Track Program – Using online multimedia simulation, hands-on training kits & lab systems, resulting in up to 17 college credits.
 - Fall 2012 – Current: Updated NDE CTE Course Catalog and collaborated with secondary teachers and industry to update program standards and curricular frameworks. Developed end of course sequence assessments for state-approved secondary programs in career and technical education. Wrote, proposed, and passed a policy statement to enable secondary students to qualify for postsecondary credit while in high school through the establishment of articulation agreements for secondary career and technical education programs that align to postsecondary programs.

DRI

DRI's Legislative Mandate:

DRI's mandate is to contribute more effectively to the security of the nation and to promote the general welfare of the State of Nevada and its citizens through the development of educational and scientific research. The primary purposes of DRI are to:

1. Foster and conduct fundamental scientific, economic, social or educational investigations and applied research for industry, governmental or private agencies or individuals;
2. Encourage and foster a desire in students and faculty to conduct research; Discover and develop talent for conducting research;
3. Acquire and disseminate knowledge related to the projects undertaken; and
4. Promote all research within the system generally.

DRI continues to meet this mandate and charge by not only conducting state-of-the-art research but also by disseminating knowledge by engaging in K-12 education programs such that DRI can foster desire in students and develop talent to engage in science.

Formal K-12 Programs:

GreenPower:

The mission of the DRI GreenPower program is to support Nevada's preK-12 educators in science-based, environmental education by providing the tools, resources, and knowledge they need, so all students acquire the knowledge and skills needed to work, live and contribute in our Nevada communities.

Teacher Trainings: GreenPower's teacher training workshops and intensives are designed to give K-12 educators in-depth background and hands-on experience with GreenPower's STEM-focused environmental science curriculum that meets state and national standards. Since the beginning of 2014, GreenPower has trained more than 470 teachers at 18 different trainings throughout Nevada. The trainings have ranged from offering professional development credits, continuing education units, graduate credits and or in-service learning credits.

Green Boxes: GreenPower's Green Boxes are uniquely designed to support the teacher training component of the GreenPower program, in that the materials contained in each Green Box provide educators curriculum, ideas for lesson plans, consumable materials, books, and hands-on teaching tools to help students learn about environmental science and STEM topics. Since the inception of the Green Box program, these materials have reached approximately 27,000 students in schools across the state. GreenPower anticipates reaching 40,000 students by the end of the school year. Forty percent of all schools participating in our Green Box program are Title One schools. DRI is working with last year's Nevada Medalist, Dr. Albert Lin who received funding for his Citizen Science company that focuses on students uploading information on a crowd sourcing platform. He wants Green Boxes to be part of it and offered to develop this in alignment to our Green Boxes for free.

Las Vegas Science and Technology Festival

DRI GreenPower played a key role in last year's Las Vegas Science and Technology Festival. Not only did we have a prominent interactive booth at the Science and Technology Expo at Cashman Center, we held an open house called "Science Live" here at DRI Las Vegas, and also was in charge of Science in the Schools. "Science

Live” attracted over 500 community members who visited labs, engaged in hands-on science projects, and heard from our Scientists. Many DRI faculty hosted lab tours and gave talks about their field of expertise. In addition to our open house, we coordinated more than 50 science speakers to visit CCSD classrooms during the week-long Science and Technology Festival impacting thousands of students.

Community Environmental Monitoring Program:

The Community Environmental Monitoring Program (CEMP) is a network of 24 monitoring stations located in communities surrounding and downwind of the Nevada National Security Site (NNSS) that monitors the airborne and groundwater environments for manmade radioactivity that could result from NNSS activities. The CEMP is very active in K-12 STEM education and part of the school tours that come through the National Atomic Testing Museum and the Las Vegas Science and Technology Festival.

Nevada Medal:

Each year DRI awards the Nevada Medal to a prominent scientist to acknowledge his or her outstanding achievement in science and engineering. As part of the awarding and celebrating of this person’s contributions and achievements, DRI works with the recipient to visit local K-12 schools to highlight and share in the excitement and personal rewards in scientific discovery. The program is specifically designed to inspire students to better engage in their STEM education activities. In recent years, DRI’s engagement with schools has led to valuable interaction with faculty and students at several schools throughout the state. At Sandy Miller Elementary in Las Vegas, the students have set up elaborate year-long projects for visits by Dr. Robert Ballard, Dr. Steven Squyres, Dr. Nina Fedoroff and Dr. Albert Lin. For example, a swimming pool was set up with robotic submarines for Ballard’s visit and a year later, crush brick was brought into a classroom where students simulated a Mars Rover mission for Squyres’ visit. In Reno, Dr. Fedoroff donated half her honorarium to Wooster High School to retrofit their hydroponics lab.

Storm Peak Lab’s 5th and 6th grade weather and climate program:

The overall goal of this program is to inspire local students with science, while teaching them skills needed for success. Students are encouraged to be lifelong learners in science and gain an understanding of the methodology of science, rather than factual recall. Approximately 250 students annually participate in the program where they learn in a weather and climate curriculum that teaches skills required by Colorado Student Assessment Program (CSAP). Hands-on, place-based educational experiences are provided where students have an opportunity to use scientific equipment (e.g., thermometers, anemometers, condensation particles counters, and barometers). All participating students gain understanding of climate, weather, and climate change.

DRI Foundation hosted forum entitled - STEM Education, Nevada, And Economic Development: Where Might We Go From Here? The forum included Tom Darcy, Senior Industry Consultant-Government and Education at IBM; David Crowther, Ph.D., Professor of Science Education Professor at UNR; Ryan Costella, Director of Strategic Initiatives at Click Bond, Inc., and Frank Woodbeck, the Executive Director of the Nevada Department of Employment, Training and Rehabilitation.

Western Regional Climate Center:

The WRCC has concerted programs that reach K-12 student through visits to schools as well as field-based trainings. For instance, this year WRCC organized field days with youth from the Owens Valley Paiute Tribe. Participants learned about the factors that drive weather and climate of the eastern Sierra Nevada and how climate is monitored. The program also used geoscientists from University of Nevada, Reno and Columbia University to examine evidence of glacial advances and retreats in the Mono Lake Basin. Approximately 40 students in grades 5-10 from Owens Valley recently participated. WRCC also visited CC Meneley Elementary 3rd grades in Gardnerville, NV as well as Veterans Memorial STEM Academy 6th graders. Curricula were delivered regarding instrumentation, climate monitoring and past climates, and how scientists look at ice cores to understand how scientists know about past climates.

Informal Programs:

Faculty Engagements with K-12 schools is an ongoing activity and is continually generated by current interest and ongoing opportunities. Examples include visits to schools to enhance science fairs, STEM days as well as formal instructional time in teacher's classrooms. Recent examples include the following:

- Visits to Sandy Searles Miller Elementary School where DRI faculty helped conduct an archaeological dig with all 600+ students,
- Science talks at Sparks Middle School that emphasized careers in Science,
- Field trips with Galena High School students to the Mt. Rose SNOTEL measurement site where students were taught how to measure snow water equivalency, instrumentation, and aspects on drought impacts.
- Lectures to Galena Advanced Placement Environmental Sciences (APES) class regarding tools and techniques in Remote Sensing/GIS and a discussion of UNR's EcoHydrology interdisciplinary program.
- Judging in Science fairs across Washoe County and Clark County school districts
- Participating in the Reno air races with an Educational/outreach booth
- Teaching in summer teacher trainings/professional development courses in collaboration with UNR/UNLV colleges of Education (e.g. Math and Science Partnership Grant activities, EPSCoR program activities)

Advisory Activities:

Several faculty, administrators and staff serve in advisory roles in K-12 education efforts. These roles include:

- Service on the CCSD School-Community Partnership Program Advisory Council.
- Service on the Advisory Board for the Raggio Center for STEM-Education (a UNR-Based center for advancing K-12 STEM education).
- Service on the Board for the State STEM-Coalition
- Service on STEM teacher's committees for advanced degrees (MS and PhD)
- Also Northern Nevada Communications Officer staffed DRI's drone research and collaborations at the Reno Tahoe Air Races, as part of the first ever Drone Zone – space for DRI booth provided by GOED NIAS northern office.

MARK YOUR CALENDARS

★ ★ ★

2014 – 2015 TESTING DATES

**11th/12th Grades
Reading, Math & Science**

October 20 – 24, 2014

★ ★ ★

**11th/12th Grades
Writing**

October 22, 2014

★ ★ ★

**11th/12th Grades
Reading, Math & Science**

March 2 – 6, 2015

★ ★ ★

**11th/12th Grades
Writing**

March 4, 2015

★ ★ ★

**12th Grade
Reading, Math & Science**

April 27 – 29, 2015

**11th Grade
ACT Plus Writing**

April 28, 2015

★ ★ ★

**12th Grade
Writing**

April 29, 2015

★ ★ ★

**11th Grade
ACT Plus Writing Retake**

May 12, 2015

★ ★ ★

**12th Grade
Reading, Math & Science**

July 6 – 10, 2015

★ ★ ★

**12th Grade
Writing**

July 8, 2015

★ ★ ★
**NEW HIGH SCHOOL
GRADUATION
REQUIREMENTS**

**BEGINNING WITH THE
CLASS OF 2016**

★ ★ ★

Nevada Department of Education

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Brian Sandoval
Governor

Dale A.R. Erquiaga
Superintendent of Public Instruction



In 2013 the Nevada State Legislature passed Assembly Bill 288, which changed Nevada's high school graduation requirements to ensure all students are ready for success in college and careers.

All students must still earn a minimum of 22.5 credits to receive a standard high school diploma. The Class of 2016 (11th-graders in the 2014-15 school year) will be the last students required to pass the Nevada High School Proficiency Exam (HSPE), which contains sections for reading, mathematics, science, and writing. New End of Course Examinations (EOCs) will replace the HSPE, beginning with the classes of 2017 and 2018 (9th and 10th graders in Fall 2014).

Additionally, all students in the 11th grade will take a new college and career readiness (CCR) assessment. The State Board of Education approved the ACT, a nationally-recognized college admission exam, as Nevada's new CCR assessment.



NEW END OF COURSE EXAMINATIONS

Four End of Course Examinations are taking the place of the Nevada High School Proficiency Examinations. Each EOC exam measures how well a student understands the subject areas tested. Students take the EOCs at the conclusion of the course, regardless of when that course is taken during a student's high school career.

This year, EOCs will be administered for the following subjects:

- » Math I with a focus on algebra I
- » Math II with a focus on geometry
- » English Language Arts I with a focus on reading comprehension
- » English Language Arts II with a focus on writing

These four EOCs will be given for the first time in the spring semester of 2015 as a paper and pencil test. During this time of transition, the classes of 2017 and 2018 (9th and 10th graders) will need to take the EOCs and no passing scores are required. The Class of 2019 (8th graders this year) will be the first class of students required to receive a passing score on the EOCs, which will be set by the State Board of Education.



NEW COLLEGE AND CAREER READINESS ASSESSMENT – THE ACT

To be eligible for graduation, all students must now take Nevada's new college and career readiness assessment in their junior year. For school year 2014-15, the State Board of Education chose the ACT as Nevada's CCR assessment. A student's ACT scores will not be used to determine graduation eligibility, but they can be submitted with college applications.

All Nevada juniors will take the ACT free of charge. This gives all Nevada students the opportunity to take a nationally recognized college admissions exam.

Why is this requirement important? Studies show that students who take the ACT are more likely to apply to and attend college. Parents and guardians can look at a student's ACT results and work together to determine the best path to college and career.

Nevada juniors will take the ACT Plus Writing, which consists of a 30-minute writing test and 215 multiple-choice questions in four subject areas: English, mathematics, reading and science.

The pencil and paper test will be administered at the student's school during the regular school day on April 28, 2015. Students who miss the first ACT test date must take the make-up test on May 12, 2015.

For additional resources on Nevada's graduation requirements please visit www.doe.nv.gov.

CLASS OF 2015 (SENIORS)

NOTHING HAS CHANGED!

EARN AT LEAST
22.5 CREDITS



PASS ALL
HSPE SUBJECTS*

*Students in the Class of 2015 who didn't pass a section of the HSPE in the 10th and 11th grade must retake these tests until each section is passed.

CLASS OF 2016 (JUNIORS)

PASS THE HSPE AND TAKE THE NEW CCR ASSESSMENT!

EARN AT LEAST
22.5 CREDITS



PASS ALL
HSPE SUBJECTS*



TAKE CCR
ASSESSMENT
(ACT)

*Students in the Class of 2016 who didn't pass a section of the HSPE in 10th grade must retake these tests until each section is passed. Students in the Class of 2016 must also take and pass their HSPE Writing test, which will be administered to this class for the first time on October 22, 2014. The ACT Writing test does NOT replace the HSPE Writing requirement.

CLASSES OF 2017 AND 2018 (SOPHOMORES AND FRESHMEN)

TAKE FOUR EOCs AND THE CCR ASSESSMENT – NO HSPE!

EARN AT LEAST
22.5 CREDITS



TAKE FOUR
EOC EXAMS



TAKE CCR
ASSESSMENT
(ACT)

CLASS OF 2019 AND LATER (EIGHTH GRADERS AND LATER)

PASS FOUR EOCs AND TAKE THE CCR ASSESSMENT – NO HSPE!

EARN AT LEAST
22.5 CREDITS



PASS FOUR
EOC EXAMS



TAKE CCR
ASSESSMENT
(ACT)

¡MARQUEN SUS CALENDARIOS!



2014 – 2015 FECHAS DE PRUEBAS

11°/12° Grados Lectura, matemáticas y ciencia

20 al 24 de octubre de 2014



11°/12° Grados Escritura

22 de octubre de 2014



11°/12° Grados Lectura, matemáticas y ciencia

2 al 6 de marzo de 2015



11°/12° Grados Escritura

4 de marzo de 2015



12° Grado Lectura, matemáticas y ciencia

27 al 29 de abril de 2015

11° Grado ACT Plus Writing

28 de abril de 2015



12° Grado Escritura

29 de abril de 2015



11° Grado ACT Plus Writing Retake

12 de mayo 2015



12° Grado Lectura, matemáticas y ciencia

6 al 10 de julio de 2015



12° Grado Escritura

8 de julio de 2015

NUEVOS REQUISITOS PARA GRADUARSE DE LA ESCUELA SECUNDARIA

INICIA CON
LA CLASE DE 2016



Nevada Department of Education

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Brian Sandoval
Governor

Dale A.R. Erquiaga
Superintendent of Public Instruction



En 2013, la Legislatura del Estado de Nevada aprobó el Proyecto de Ley 288, que cambió los requisitos para graduarse de la escuela secundaria de Nevada para garantizar que todos los estudiantes estén listos para tener éxito en la universidad y las carreras profesionales.

Todos los estudiantes aún deben ganar un mínimo de 22.5 créditos para recibir un diploma de escuela secundaria estándar. La clase de 2016 (11° grado en el año escolar 2014-15) serán los últimos estudiantes que deban aprobar el examen de suficiencia de la escuela secundaria (HSPE, por sus siglas en inglés) de Nevada, que contiene secciones de lectura, matemáticas, ciencia y escritura. Los nuevos exámenes de fin de curso (EOC, por sus siglas en inglés) reemplazarán al HSPE, que comenzará con las clases de 2017 y 2018 (9° y 10° grados en otoño de 2014).

Además, todos los estudiantes de 11° grado realizarán una nueva evaluación de preparación para la universidad o carrera (CCR, por sus siglas en inglés). La Junta Educativa Estatal aprobó el ACT, un examen de admisión a la universidad reconocido nacionalmente, como la nueva evaluación CCR de Nevada.



NUEVOS EXÁMENES DE FIN DE CURSO

En los exámenes de suficiencia en la escuela secundaria de Nevada tienen lugar cuatro exámenes de fin de curso. Cada EOC mide qué tan bien entiende un estudiante las materias evaluadas. Los estudiantes realizan el EOC al final del curso, independientemente de cuándo se tome el curso durante el cursado de la escuela secundaria del estudiante.

Este año, se administrará un EOC para las siguientes materias:

- » Matemáticas I centrado en álgebra I
- » Matemáticas II centrado en geometría
- » Artes del idioma inglés I centrado en comprensión de lectura
- » Artes del idioma inglés II centrado en escritura

Estos cuatro EOC se realizarán por primera vez en el semestre de primavera de 2015 como un examen con papel y lápiz. Durante este tiempo de transición, las clases de 2017 y 2018 (9° y 10° grados) simplemente tendrán que realizar los EOC y no se requieren

calificaciones de aprobación. La clase de 2019 (8° grado este año) será la primera clase de estudiantes que deban recibir una calificación satisfactoria para aprobar los EOC, que será establecida por la Junta Educativa Estatal.



NUEVA EVALUACIÓN DE PREPARACIÓN PARA LA UNIVERSIDAD Y CARRERAS PROFESIONALES - EL ACT

Para cumplir con los requisitos para graduarse, todos los estudiantes ahora deben realizar la nueva evaluación de preparación para la universidad y carreras profesionales de Nevada durante el penúltimo año. La Junta Educativa Estatal escogió el ACT como la evaluación CCR de Nevada para el año escolar 2014-15. Las calificaciones del ACT de un estudiante no se utilizarán para determinar la elegibilidad de graduación, pero pueden enviarse con las solicitudes de ingreso a las universidades.

Todos los estudiantes de penúltimo año de Nevada tomarán el ACT gratuitamente. Esto les brinda a los estudiantes de Nevada la oportunidad de tomar un examen de admisión a la universidad reconocido en todo el país.

¿Por qué es importante este requisito? Estudios demuestran que es más probable que los estudiantes que toman el ACT soliciten el ingreso y asistan a las universidades. Los padres y tutores pueden ver los resultados ACT de un estudiante y trabajar juntos para determinar el mejor camino universitario y para una carrera profesional.

Los estudiantes de penúltimo año de Nevada tomarán un ACT "Más Escritura" (Plus Writing), que consiste en una prueba de escritura de 30 minutos y 215 preguntas de opción múltiple sobre cuatro materias: inglés, matemáticas, lectura y ciencia.

La prueba de lápiz y papel se realizará en la escuela del estudiante durante el día escolar regular el 28 de abril de 2015. Los estudiantes que falten a la primera fecha de prueba ACT deben tomar la prueba de recuperación el 12 de mayo de 2015.

Si necesita recursos adicionales sobre los requisitos de graduación de Nevada, **visite www.doe.nv.gov**.

CLASE DE 2015 (ÚLTIMO AÑO)

¡NO HA CAMBIADO NADA!

GANAR AL MENOS
22.5 CRÉDITOS



APROBAR TODAS
LAS MATERIAS
DEL HSPE*

* Los estudiantes de la clase de 2015 que no aprobaron una sección del HSPE en los grados 10° y 11° deben volver a tomar estas pruebas hasta que aprueben cada sección

CLASE DE 2016

(ESTUDIANTES DE PENÚLTIMO AÑO)

¡APROBAR EL HSPE Y TOMAR LA NUEVA EVALUACIÓN CCR!

GANAR AL MENOS
22.5 CRÉDITOS



APROBAR TODAS
LAS MATERIAS
DEL HSPE*



TOMAR LA
EVALUACIÓN CCR
(ACT)

* Los estudiantes de la clase de 2016 que no aprobaron una sección del HSPE en 10° grado deben volver a tomar estas pruebas hasta aprobar cada sección. Los estudiantes de la clase de 2016 también deben tomar y aprobar la prueba HSPE de escritura, que se administrará en esta clase por primera vez el 22 de octubre de 2014. La prueba ACT de escritura no reemplaza el requisito HSPE de escritura.

CLASES DE 2017 Y 2018

(ESTUDIANTES DE SEGUNDO Y PRIMER AÑO)

TOMAR CUATRO EOC Y LA EVALUACIÓN CCR - ¡SIN HSPE!

GANAR AL MENOS
22.5 CRÉDITOS



TOMAR CUATRO
PRUEBAS EOC



TOMAR LA
EVALUACIÓN CCR
(ACT)

CLASES DE 2019 Y POSTERIORES

(ESTUDIANTES DE OCTAVO GRADO Y POSTERIORES)

APROBAR CUATRO EOC Y LA EVALUACIÓN CCR - ¡SIN HSPE!

GANAR AL MENOS
22.5 CRÉDITOS



APROBAR CUATRO
PRUEBAS EOC



TOMAR LA
EVALUACIÓN CCR
(ACT)