NEW MEXICO TECH

NEW MEXICO TECH SUMMER STE²M EXPERIENCE

June 13-17
July 11-15

A STE²M Course is…

… a five-day opportunity for you to be a college student and earn one credit hour. Learn more about a specific science or engineering discipline while you experience university life on New Mexico Tech's campus. You will be challenged by college professors with exciting lectures, relevant labs, and interesting field trips designed to give you a great understanding of what it takes to succeed in that particular field.

New Mexico Tech's Summer Science Experience will give you an idea of what to shop for when you're ready to apply to college. You'll learn what it takes to reach your career goals, and it looks GREAT on your college application!

New Mexico Tech has a reputation for quality: quality academics, quality faculty, and quality students. It is a university dedicated to excellence in education and research, within a collegial, yet challenging, atmosphere.

Tech offers degrees in physical and biological sciences, chemistry, computer science, engineering, Earth sciences, mathematics, management, physics, technical communication, and pre-professional programs. Tech also offers numerous master's and Ph.D. programs. Students at Tech share a tradition of cooperation, helpfulness, and a motivated determination to succeed.

Summer is a great time to be on New Mexico Tech's green, shady, flower-filled campus! Enjoy our swimming pool and gym and meet fellow students from all over the United States while improving your mind, earning college credit, and experiencing college life — all in one week!

Minimum requirements: Rising juniors and seniors with at least a 2.75 cumulative grade point average (on a 4.0 scale) and Algebra I or higher.

THE SUMMER STE²M EXPERIENCE @ NEW MEXICO TECH

Courses

Digital Media: Research, Design, & Society

Chemical Engineering: Scaling Chemical Discoveries

Materials Engineering: Metals, Ceramics, Polymers, Composites

Electrical Engineering: Transforming Solar Power to Usable Electricity

Biology: Discovering Biology in the Field and the Lab

Mineral Engineering: Mining in the 21st Century

Petroleum Engineering: Summer Petroleum

Mechanical Engineering: Rover Design and Programming

Physics: The Atmosphere

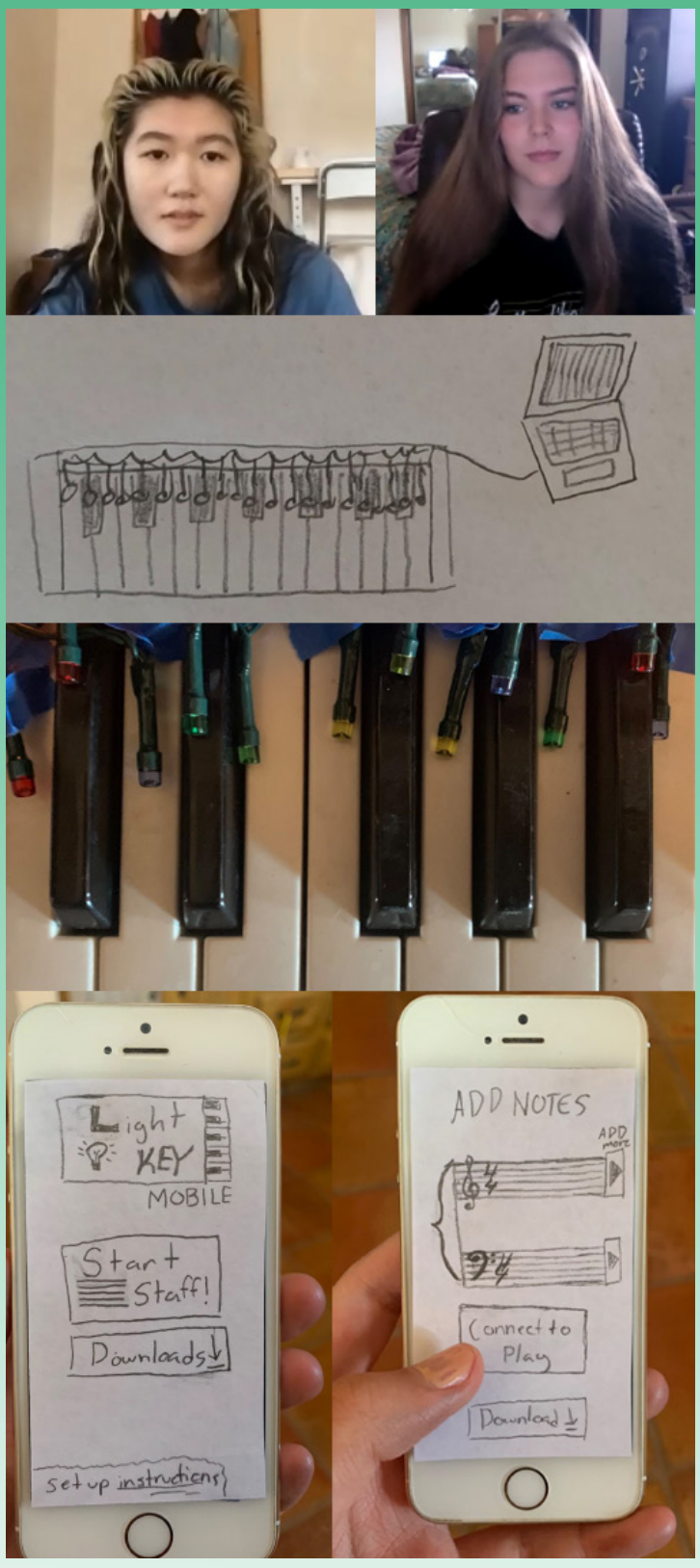
Environmental and Earth Science

DIGITAL MEDIA

Research, Design, & Society

Drs. Taffeta Elliott & Rebecca Spruill

This mini-course is a survey of how human beings apply their senses and language to navigate their environment, collaborate, and use technology. Mini-course projects will include a combination of hands-on creative production and fun activities involving experimental psychology tools, taught by social science and visual arts experts. Activities may include eye tracking experiments, user-centered design exercises, prototyping and testing digital/ web-based interfaces that may include app or website design, investigations into human memory and visual perception, and tasks illustrating some ways in which we treat media, computers, and other technologies as if they were alive.



Design project by Pearl Mariano

June 13-17

24 students maximum

CHEMICAL ENGINEERING

Scaling Chemical Discoveries

Dr. Michaelann Tartis & Seth Price

Chemical Engineering is the understanding of how chemical reactions occur and how to scale them up from small, batch, bench top quantities to full-scale, continuous industrial production. Chemical engineers at Tech are also involved in many different research topics, including nanomaterials, traumatic brain injury, biofuels, drug delivery, catalysis, biomaterials, and methane capture. Students in the Chemical Engineering Summer Course will learn how nylon and biodiesel are produced, as well as operate pilot-scale equipment, such as a heat exchanger and an absorption column. They will also explore the various research, engineering and testing methods used in chemical engineering.

June 13-17

16 students maximum

MATERIALS ENGINEERING

Metals, Ceramics, Polymers, Composites

Dr. T. David Burleigh & Margaret Showalter

Do you know why plastic bends but glass breaks? Or why metals are marvelously malleable? How is concrete different from cement? In this Materials Engineering mini-course you will learn how the structure and composition of these materials determines their properties and uses. Explore diverse materials including metals, polymers, ceramics, and composites through a mix of expert lectures and hands-on laboratory experiences. At the intersection of chemistry, physics and mechanical , Materials Engineering is a STEM field that you'll want to learn more about

June 13-17

20 students maximum

ELECTRICAL ENGINEERING

Transforming Solar Power to Usable Electricity

Chris Pauli

We are living in a world where solar energy is exploding in popularity, but there is more to using the power of the sun to make electricity than just setting up solar panels. This mini course explores some ways of combining solar panels into a standalone energy system on a small scale in order to explore larger scale applications.

June 13-17

12 students maximum

BIOLOGY

Discovering Biology in the Field and the Lab

Dr. Kaarin Goncz

The field of biology involves the observation and experimentation on living systems. Biologists study nature both in the lab or outside in the field. Often, samples are collected in the field and then research experiments happen in the lab. In this course, students will take field trips to observe and explore the local environment. They will learn how to collect the plants, animals and microbes that populate them. Back in the lab, students will investigate specimens, and will learn about experimental design for tesing scientific hypotheses. They will use hands-on laboratory equipment and techniques as well as learn about the Biology research going on at NM Tech.

June 13-17

16 students maximum

MINERAL ENGINEERING

Mining in the 21st Century

Dr. Navid Mojtabai

The students will be introduced to the important role and impact of minerals and raw materials in our daily lives and activites and the challanges in providing these critical minerals to other industries and fast-growing societies. These challanges include technological, economic, social and environmental concerns. Students will learn about discovery of mineral resources, exploration, different mining methods and materials handling, drilling and blasting, environmental issues, stability of surface and underground openings as well as health and safety. Two field trips to active mines are part of class.

$250 scholarship available

July 11-15

8 students maximum

PETROLEUM ENGINEERING

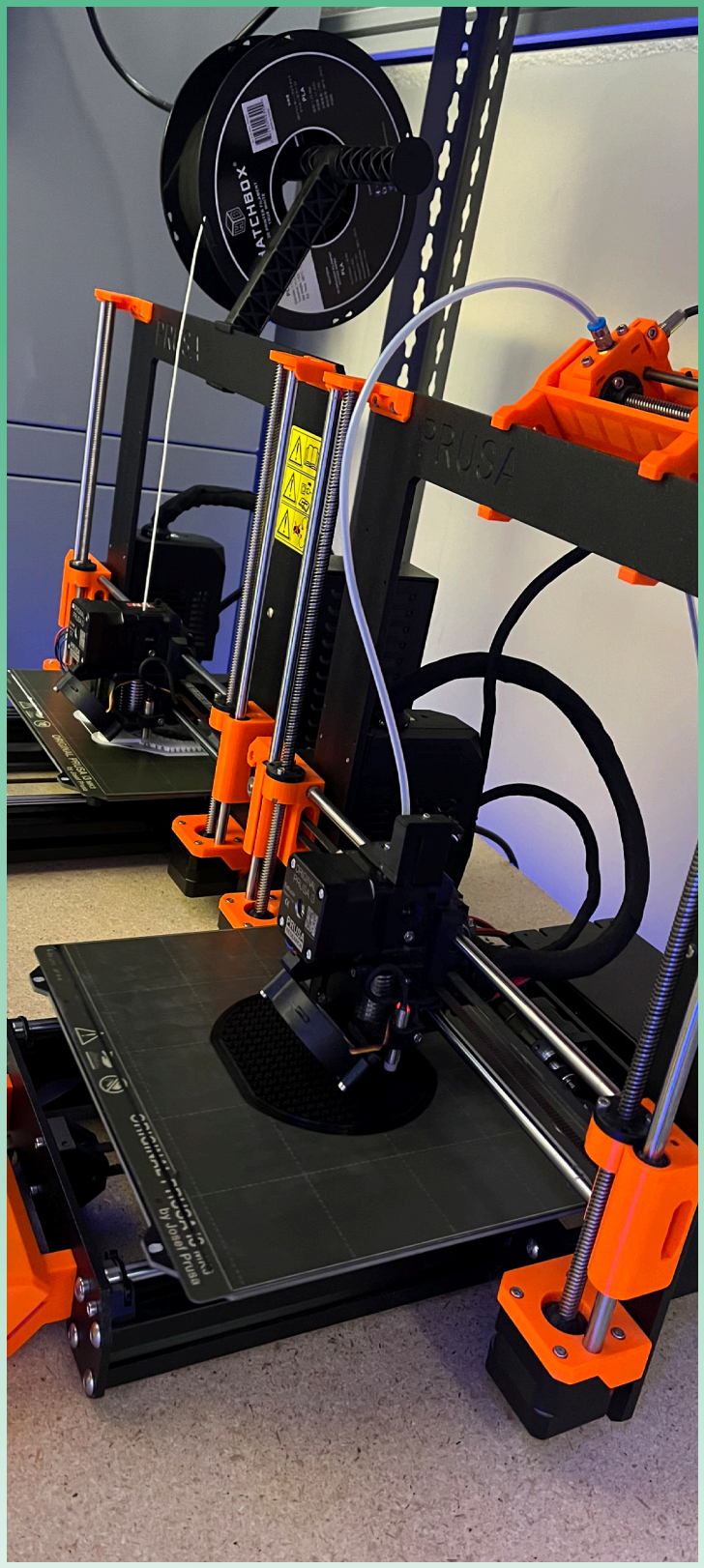
Summer Petroleum

Dr. Hamid Rahnema

This course is designed to give students an introduction to the oil and gas industry as well as show how the industry impacts the world. In this course students will learn basic concepts and have hands on experience on the following topics: Properties of petroleum fluids, formation of rocks, flow in reservoirs, reservoir energy, drilling, production and hydraulic fracturing. Students will have a chance to play with the full-size drilling simulator, build a monitoring system, design drilling fluids, conduct simple tests on petroleum fluids and formation rocks and visit research facilities.

July 11-15

MECHANICAL ENGINEERING



Rover Design and Programming

Dr. Curtis O'Malley

The course is being conducted in conjunction with a NASA - NM Space Grant Consortium grant for rover innovation and design. The course has students work alongside NMT research assistants that will guide students through the design, fabrication and coding of a robotic sub-system of a rover. Students will take the next steps in developing a rover to complete a task relevant to exploration. They will be tasked with designing mechanical parts to compliment the rovers capabilities as well as implement custom code to complete the mission. Through these tasks students will evaluate design options and optimize software code and physical systems to most efficiently explore uncharted regions. The course is being conducted in conjunction with a NASA - NM Space Grant Consortium grant for rover innovation and design.

July 11-15

30 students maximum

PHYSICS

The Atmosphere

Dr. Kenneth Minschwaner

Atmospheric Physics lies at the heart of understanding all weather-related phenomena, from blizzards to tropical storms. The same physics is used as a basis for weather forecasting systems and global climate models. We will learn the basics of atmospheric physics through a combination of physical principles, demonstrations, and hands-on experiments. The class will make atmospheric observations using surface instruments and balloon soundings, and develop skills in the analysis and interpretation of satellite data.

July 11-15

ENVIRONMENTAL AND EARTH SCIENCE

Summer Environmental and Earth Science

Dr. James Harrison

Learn about New Mexico Geology and how modern geologic proccesses impact our lives. We will run 2 half day field trips to look at active faults, folded rocks, and fossil localities. Class time will focus on how to identify rocks and minerals, why NM Streams only run in summer and how you can use Google Earth to show modern geologic processes

July 11-15

THE SUMMER STE²M EXPERIENCE @ NEW MEXICO TECH

$525

Includes all meals, housing, and enrollment. Spots limited per course, apply now!

https://apply.nmt.edu/portal/summer_stem

Courses

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