SUMMER 2017

camps.uni.edu

University of Northern Iowa

Dear Campers (and parents),

We invite you to participate in a UNI STEM Camp this summer. Science, technology, engineering, and mathematics are all around us, a part of every day life. The camp sessions presented in this brochure are designed with your interests in mind. Our goals are to provide Cedar Valley students with unique, fun, and exciting experiences in STEM, and an opportunity to explore the UNI Campus, make new friends, and build and discover their STEM strengths. Please check out the opportunities in this brochure and see the UNI Summer Camps website (camps.uni.edu) to register for a UNI STEM Day campand explore the other summer opportunities at UNI.

-UNI STEM Staff & Camp Directors

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The University of Northern Iowa does not discriminate in employment or education. Visit uni.edu/policies/1303 for additional information.

Learn more and register:
camps.uni.edu

Questions about the UNI STEM camps?
Contact UNI STEM at 319-273-7399 or seavey@uni.edu

2017 STEM Camp Offerings

LIGHTS, ACTION, MAGIC!

June 12 - June 16, 2017, 9:30 am - 4:00 pm daily

Ages: Entering 4th through 12th grade
Logistics: $150 registration fee includes camp supplies, field trips, and a snack daily. Campers should bring a sack lunch Monday-Thursday; Friday's lunch will be provided. This camp is open to campers with diagnosed communication disorders, learning disabilities, or documented as at-risk/low literacy learners only.

Explore science, technology, engineering and math (STEM) through the understanding of magic. This camp is designed for 4th through 12th grade campers who have communication disorders, learning disabilities, or are considered at-risk/low literacy learners. Students will be assigned to teams of similar aged peers. Activities will include demonstrations of magic (discrepant events) that piques the campers' curiosity. Demonstrations will be followed by counselors leading campers through steps to explain and demonstrate the magic and the STEM concepts to others. On-campus field trips such as visiting the botanical center and magic activities will utilize reading, writing, and theater to retain information learned. On Friday, campers will demonstrate their favorite activities and explain how they work to their families.

CAMP MULTIMEDIA

June 12 - June 16, 2017, 9:00 am - 3:00 pm daily

Ages: Entering 6th through 10th grade
Logistics: $150 registration includes camp materials, programming, and a snack daily. Campers should bring a sack lunch Monday-Thursday; Friday's lunch will be provided.

Camp MultiMedia is a week-long summer camp that offers middle-school-aged campers the opportunity to become creators, and not just consumers, of digital media. For almost a decade, CMM has introduced campers to innovative technology that is already related to their interests as consumers of media. Importantly, while campers acquire notable technological skills (in programming or software useor hardware modification) they are also given instruction to apply aesthetic principles to the artifacts that they design. This year's specializations include: 3-D Modeling and Printing, Video Game Design, Advanced Video Game Design (Minecraft & Raspberry Pi) & Photo and Video for Social Media.

INTRODUCTION TO ROBOTICS - FOR GIRLS

June 12 - June 16, 2017, 8:30 am - 3:00 pm daily

Ages: Entering 5th through 9th grade
Logistics: $150 registration fee includes use of robot kit and programming software during camp, and a snack daily. Campers should bring a sack lunch Monday-Thursday; Friday's lunch will be provided.

Campers will form teams to design and build Lego EV3 robots. Team members will work together programming their robots to solve a variety of simulated problems. For girls with no previous through beginner level robotics and programming experience, this camp will build programming, design, and problem solving skills in an exciting and fun environment.

NEW DIMENSIONS IN ART AND STEM WITH 3D PRINTING - FOR GIRLS

June 12 - June 16, 2017, 9:00 am - 4:00 pm daily

Ages: entering 7th through 8th grades
Logistics: $125 registration fee. This camp offers campership to those with financial need. Please contact roberta.roberts@uni.edu or 319-273-7399 to learn how to apply.

Bring your creativity and watch your ideas come to life! In this camp, you will create exciting art and design projects by developing skills in 3D modeling and printing. Learn all about 3D modeling and design, reverse engineering, and additive manufacturing (3D Printing). Experience printing in plastic and sand and pour a casting of one of your own designs in UNI's foundry. Tour local companies and hear from guest speakers about how they use 3D printing. You will head home with your custom designs!

This camp will meet at the Additive Manufacturing Center, TechWorks Campus in Waterloo.

INTRODUCTION TO ROBOTICS

June 19 - June 23, 2017, 8:30 am - 3:00 pm daily

Ages: Entering 5th through 9th grade
Logistics: $150 registration fee includes use of robot kit and programming software during camp, and a snack daily. Campers should bring a sack lunch Monday-Thursday; Friday's lunch will be provided.

Campers will form teams to design and build Lego EV3 robots. Team members will work together programming their robots to solve a variety of simulated problems. For boys and girls with no previous through beginner level robotics and programming experience. This camp will build programming, design, and problem solving skills in an exciting and fun environment.

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June 19 - June 23, 2017, 9:00 am - 3:00 pm daily

Ages: Entering 6th through 8th grade
Logistics: $150.00 registration fee includes use of LEGO Renewable Energy kits and a snack daily. Campers should bring a sack lunch Monday-Thursday; Friday's lunch will be provided. Campers must wear jeans or other long pants and tennis shoes or other close-toed shoes in the ITC labs.

This camp is designed by UNI Electrical Engineering Technology (EET) faculty to inspire talented middle school students and build a foundation for understanding energy, power generation, renewable energy sources, science, engineering, and technology. Spend the week at the UNI Electrical Engineering Technology (EET) facility exploring energy sources, especially renewable energy. Get your hands on EET lab equipment (including solar panels, wind tunnel, and turbine) to investigate circuits, generators, and motors. Once you've got the basics of energy down you'll work in teams with LEGO Renewable Energy Kits to solve a series of challenges.

EXPLORING THE TALLGRASS PRAIRIE

June 26, 2017 to June 30, 2017, 9:00 am - 12:00 pm daily

Ages: Entering 2nd through 6th grade
Logistics: $100 registration fee includes art materials and a snack daily.

Come explore the Tallgrass prairie through art, science, and technology! We will visit UNI's prairie preserves to learn about the plants and animals that live on the prairie and then create photographs, sketches, and other art inspired by our exploration. If you love being outdoors and learning about nature and art, this camp is for you!

INTERMEDIATE ROBOTICS

June 26 - June 30, 2017, 8:30 am - 3:00 pm daily

Ages: Entering 7th through 10th grade
Logistics: $150 registration fee includes use of robot kit and programming software during camp, and a snack daily. Campers should bring a sack lunch Monday-Thursday; Friday's lunch will be provided.

Prerequisites: Must have completed the UNI Introduction to Robotics camp in a previous year or have served on an FLL team for at least one year. No exceptions to grade level requirements or prerequisite requirements will be allowed.

Campers with previous Lego EV3 robotics experience will learn how to design, build, and program Lego EV3 robots to perform a variety of advanced tasks. These tasks will require usage of multiple sensors and gears. The camp will increase participants' knowledge/skill in several STEM areas: (1) engineering by designing, building and testing of their robots using Lego kits, (2) technology by designing programs for their robots to solve various advanced tasks, and (3) reinforcing the importance of mathematics and physics in the design, implementation and testing of their robot and programs. Armed with the robotics skills and confidence from the camp, campers will be encouraged to participate in their school's FLL (First Lego League), FTC (First Tech Challenge), or FRC (First Robotics Competition) team in the Fall.

ULTIMATE SUMO ROBOTICS

July 10 - July 14, 2017, 9:00 am – 3:30 pm, daily

Ages: entering 9th through entering college freshmen
Logistics: $325 registration fee includes build and take home your own mini-sumo arduino robot, programming, and a snack daily. Campers should bring a sack lunch Monday-Thursday; Friday's lunch will be provided.

Build your own fighting sumo robot in just one week! Design, build, program, and test your own mini-sumo robot, then challenge fellow campers to a match of power and wits in the sumo ring (like Japanese Sumo wrestlers). Can your robot expel all challengers while holding its ground? Everyone will exit the ring and the week with new design and programming skills, knowledge of autonomous vehicle robotics and their own robot to take home.

MASTERING MULTIPLAYERS

July 17 - July 21, 2017, 9:00 am - 4:00 pm daily

Ages: Entering 7th through 12th grade
Logistics: $150 registration fee includes computer lab access, Internet server access, programming, and a snack daily. Campers should bring a sack lunch Monday-Thursday; Friday's lunch will be provided.
Prerequisite: Must own a PC Minecraft license OR have more than 50 hours in any Steam multiplayer game.

Get your game on! Campers will explore the server side of online gaming through Minecraft and Steam-based game servers. Deploy and manage (and play!) a multiplayer game server on a cloud-based service. Tackle network setup, server configuration, security constraints, and game customization through modules ('mods), plug-ins and extensions.

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