



## Renewable Energy Engineering

July 22-26, 2012

For students entering grades 10-12

This camp is open to students who are interested in science and math and wish to learn about renewable energy engineering. It provides a wonderful opportunity to learn about wind energy, solar energy, fuel cells and nuclear energy through exciting class sessions and hands-on labs.

- solar energy
- wind energy
- fuel cells
- nuclear energy

Renewable energy is a growing industry that needs engineers who can improve the efficiency of current technologies and develop new ways to produce clean affordable energy. The Renewable Energy Engineering program at Alfred University is dedicated to the study and practice of energy systems for a sustainable environment. Our mission is to produce the next generation of engineers and scientists who will develop and perfect renewable energy systems, make improvements on energy efficiency, and advance science and engineering to create a more sustainable future for our planet.

Camp Director and Primary Instructor:  
Dr. Jalal Baghdadchi, AU Associate Professor of Electrical Engineering  
baghdadchi@alfred.edu

[www.alfred.edu/summer/camps/renew-energy.cfm](http://www.alfred.edu/summer/camps/renew-energy.cfm)

## Schedule

Students check-in between 2:00 and 4:00 p.m. on Sunday and check-out after lunch on Thursday. They attend classes each day and participate in recreational activities on and off campus each evening. Further information, including a detailed program schedule and driving directions to campus, will be sent to all students upon acceptance.

## Supervision

When participants are not in class, they are supervised by our wonderful team of Resident Assistants, who are specially trained to serve as camp counselors, positive role models, mentors and friends.

## Housing and Meals

Students stay in secure University residence halls dedicated to summer campers. Males and females are housed in separate buildings. Resident Assistants will be on-site in the residence halls at all times. Laundry facilities are available in each hall at no charge.

Delicious, all-you-can-eat, cafeteria-style meals are served in the campus dining hall. Our Dining Services chefs do an excellent job in accommodating campers with food allergies and other special requirements.

## Cost

The fee is \$850 per camp. This covers tuition, supervision, program materials & equipment, recreational activities, room and board from dinner on the first day through lunch on the last day. (Students living locally who wish to attend these camps as commuters may do so. Please visit our website for commuter rates and other details.)

The non-refundable \$100 deposit must be submitted with the application. Payment can be made by check or credit card. Full payment of the balance is due May 25, 2012.

**With our dynamic, engaging, talented and caring faculty and staff; terrific facilities; and lovely surroundings, an Alfred University Summer Program could make this your best summer ever!**

## How to Apply

We will begin accepting applications January 3, 2012. Students who wish to apply must submit the following:

1. a completed application form\* (please visit camp web page to download the form)
2. a copy of an up-to-date transcript or report card
3. two letters of recommendation from teachers
4. a one-page essay telling us why you would like to attend the camp
5. a \$100 deposit (non-refundable unless you are not accepted into the program). The balance is due by May 25. (Sorry, no financial aid or scholarships are available.)

Please send all items in one packet and submit by the application deadline: April 13, 2012. (Later applications will only be considered if space is available.) Application materials can also be faxed to 607-871-2045, or scanned and emailed to [summerpro@alfred.edu](mailto:summerpro@alfred.edu).

\*If you do not have access to a computer and wish to receive a paper copy of the application form please contact us at 607-871-2612.

## Acceptance Procedure

The Summer Programs Admissions Committee will evaluate all applications after the April 13 deadline and determine which students will be accepted. Acceptance/non-acceptance notification will be provided to applicants by April 27. If you require an earlier decision, please indicate this by including a note with your application form.

Accepted students will receive additional materials including medical forms, liability releases, emergency notification forms, etc. These materials must be filled out as soon as possible and must be back in our hands by May 25. Updated immunization information (including dates) is also required at that time.

### Alfred University Policy Against Discrimination

Whether considering candidates for admission or financial aid, applicants for employment or the management of its policies and school-administered programs, Alfred University does not discriminate on the basis of gender, sexual orientation, age, race, color, national or ethnic origin, religion, or disability. Alfred University is an affirmative action, equal opportunity employer.

**Cancellation:** The University may cancel any course or activity at any time because of insufficient enrollment or other unforeseen circumstances. If a program is canceled or postponed, the University will refund registration fees but cannot be held responsible for other costs, charges, or expenses, including cancellation/change charges assessed by airlines or travel agencies.

## Questions?

**For further general information, please contact:** the Office of Summer Programs at [summerpro@alfred.edu](mailto:summerpro@alfred.edu) or 607-871-2612. For specific information concerning class content please contact the appropriate Camp Director (indicated in each camp description).

## About Alfred

Alfred University is located in the safe, peaceful village of Alfred in western New York State, where summer days are warm and nights are cool and comfortable. Surrounded by rolling hills and beautiful meadows and valleys, Alfred University is the perfect place to spend an enjoyable week learning more about a favorite subject and meeting other students who share your interests!



The campus, a 6-hour drive from New York City, 2 hours from Buffalo, and 1 1/4 hours from Rochester, is easily accessible by car or bus from all directions and is just five miles south of Interstate 86. The nearest major airport is the Rochester International Airport (about 65 mi. north). Transportation to/from that airport can be provided for an additional charge of \$100 (round trip).



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[www.alfred.edu/summer](http://www.alfred.edu/summer)  
[summerpro@alfred.edu](mailto:summerpro@alfred.edu)

Alfred University  
Summer Programs

# Engineering & Science Camps



# Engineering & Science Summer Programs

## June 24-28:

- Ceramic Engineering Camp
- Robotics Engineering Camp

## July 22-26:

- Computer Engineering Camp
- Consumer Chemistry Camp
- Renewable Energy Engineering Camp

Each summer we welcome teens from all over the country to our campus to take part in exciting engineering and science camps. These dynamic programs are designed to provide top quality instruction in a supportive environment, enjoyable activities, safe and pleasant surroundings, comfortable housing and nutritious meals, while also giving students an idea of what it's like to be in college.

## Faculty

Programs are directed and classes are taught by distinguished members of the Alfred University faculty, assisted by advanced AU graduate students.

## Who Can Attend

The age range varies from camp to camp. The number of participants is limited to allow for individualized attention and optimal use of equipment. Please review the detailed descriptions that follow for further information.

## Recreation

When not in class, students have **lots of fun** participating in a variety of recreational activities including outdoor games like "Capture the Flag" and "Ultimate Frisbee," indoor games, movies, visits to a nearby lake for picnics and campfires, swimming, hikes, relaxing and socializing at the Coffee House, a farewell party on the last night, and more. Living, dining and learning together, students have a great opportunity to get to know each other and develop lasting friendships.

Please visit the webpages indicated after each program description to download the application form, read comments from past participants and view further important information.

## Ceramic Engineering

June 24-28, 2012

For students entering grades 11 or 12

This camp is all about **Ceramic Engineering and Polymer Discovery!** Ceramic processing lies at the heart of all ceramic manufacturing processes. Traditional ceramics are those that are typically based on kaolin (clay) and glass, such as dinnerware and tile. Advanced ceramics do not contain clay. **This summer, traditional and advanced ceramics will intersect** and a ceramic "sun-catcher" will be fabricated using tape casting, lamination, and glazing, capturing aspects of both traditional and advanced ceramic materials and processing techniques!

Polymers, both natural and synthetic, have unique properties based on their chemistry and physics, in daily labs students will:

- understand how the absorbency of diapers relates to contact lenses and environmental cleanup while quantifying and modeling the water uptake.
- experience the extreme variability of polymer viscosity via student-created slime and consider the effects of viscosity from "molasses in January" to personal armor protection.
- discover the hidden uses of polymers by selective destruction of consumer electronics, e.g. cell phone, Ipod, Xbox, computer



Dr. Steve Pilgrim, AU Professor of Materials Science and Engineering, and Dr. Bill Carty, AU Professor of Ceramic Engineering and Materials Science, are Co-Directors of this program and serve as the primary instructors. For specific information concerning class content please contact Dr. Pilgrim at pilgrim@alfred.edu.

[www.alfred.edu/summer/camps/science.cfm](http://www.alfred.edu/summer/camps/science.cfm)



## Robotics Engineering

June 24-28, 2012

For students entering grades 10-12

This camp is based on the VEX Robotics System which offers an exciting platform for learning about areas rich with career opportunities spanning science, technology, engineering and math (STEM). Beyond science and engineering principles, a VEX Robotics project also encourages teamwork, leadership and problem solving among groups.

Students will experience hands-on learning in small classes, through assembling and programming the VEX Robotics System to perform various functions. Topics include:

- Overview of a VEX Robotics System
- Assembling the VEX Robotics System
- Programming the VEX Robotics System using EasyC for basic movements (going forward, backward, turning, picking up objects, etc.)
- Learning how to perform both radio control and autonomous control of the VEX Robotics System
- Programming the VEX Robotics System to go through a simple maze
- Programming the VEX Robotics System for classroom competition in a football/soccer game

Program Director & Primary Instructor:  
Dr. Jianxin Tang, AU Professor of Electrical Engineering  
ftang@alfred.edu

[www.alfred.edu/summer/camps/robotics.cfm](http://www.alfred.edu/summer/camps/robotics.cfm)

## Computer Engineering

July 22-26, 2012

For students aged 12-17

This camp offers computing experiences for both basic and advanced students. Students learn at their own pace, each at their own computer station. Both creative and practical programming will be covered, but the emphasis is on having fun.



Students can choose to learn on their own, or work in a group. When they register, students can select the areas of computing they wish to study. Instruction topics include the following:

- Video game design
- Microcontrollers
- Computer languages
- Web page design
- Software applications
- Simple robotics

Students will learn an advanced language such as C++ or Java and can experiment with new graphics languages. Each will program different applications that they will then be able to take home.

Web page design will include instruction in HTML - the standard used to program web pages - as well as DHTML. Students will also learn to use software to create graphics. Each student will leave camp having designed his/her own web page that includes text and graphics.

Program Director & Primary Instructor:  
Dr. Wallace Leigh, AU Professor of Electrical Engineering  
fleigh@alfred.edu

[www.alfred.edu/summer/camps/computer-engr.cfm](http://www.alfred.edu/summer/camps/computer-engr.cfm)

Learn advanced programming skills to program robots, sensors and security systems!



## Consumer Chemistry

July 22-26, 2012

For students aged 14-17

If you are interested in science and wish to learn more about the chemistry of everyday consumer products, this camp is for you!

Have you ever wondered...

- Why and how hair dye works?
- What makes diet soda sweet?
- What the "pro-vitamins" in your shampoo are?
- What electrolytes in sports drinks are good for?
- How a detergent gets your clothes clean?

This program will help answer those questions and many more! You will discover how to interpret the ingredients lists of your favorite foods and products while learning some basic chemistry.

For example, in our tie-dye lab, you will learn the basics of drawing chemical structures, how to extract natural dyes, and the basics of chromatographic separations, while making a T-shirt to keep. Also included are discussions, brief lectures, reading about chemistry in the news, and inquiry-based activities.

Daily camp sessions enable you to develop a deeper understanding of household products in a fun and safe environment. Please visit our website for further details!

Program Director & Primary Instructor:  
Mrs. Ruth Bowers, AU Assistant Professor of Chemistry  
bowersr@alfred.edu

[www.alfred.edu/summer/camps/chemistry.cfm](http://www.alfred.edu/summer/camps/chemistry.cfm)