

The NC Space Grant/Lord Corporation Summer Internship Program - 2009

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The NC Space Grant has partnered with the Lord Corporation to establish a summer internship program to give students real-world experiences in a cutting-edge industrial setting.

Lord Corporation is a worldwide leader in adhesives and coatings, vibration and motion control, and magnetically responsive technologies. Operating from world headquarters in Cary, NC, Lord Corporation has 17 manufacturing facilities in nine countries and 90 strategically located sales and support centers worldwide.

The NC Space Grant/Lord Corporation Summer Internship Program will provide support for 2 undergraduate or graduate students (pursuing degrees in STEM disciplines) to participate in a 10-week internship at Lord Corporation's world headquarters campus in Cary.

Research Projects

Selected students will be assigned to a research project that best fits their educational experience. Each project will offer the student the opportunity to engage in hands-on research under the supervision of a professional mentor. NC Space Grant/Lord Corporation Summer Internship Program projects are described below:

- 1) **Electronic Materials Resin Technology Development:** The candidate will explore new resin technologies and collaborate with the product development team in order to develop new high performance adhesive formulations and evaluate the performance of these materials. The project involves the synthesis and characterization of monomers, macromonomers, and organic/inorganic hybrid materials. The goal of this project is to develop innovative materials that will be utilized in next generation microelectronic adhesives. (Chemistry)
- 2) **Combinatorial and High-throughput methods for Materials R&D:** The goal of this study is to build, modify, and implement devices for carrying out highly efficient experiments on common LORD materials, e.g. adhesives, composites, and/or coatings. These devices have the potential to study multiple variables at one time, thereby greatly reducing the time it takes to identify optimum performance space. Specifically, the applicant will assist in: (1) applying, curing, and characterizing LORD materials with these devices/techniques; (2) identifying ways to improve on the existing techniques; and (3) benchmarking against serial experimental approaches to estimate time savings. (Chemistry, Textile Chemistry, Chemical Engineering or Material Science)
- 3) **Military Vehicle Suspension Systems:** Lord is currently developing new suspension technology for military vehicles using magnetorheological fluids. During the summer, the candidate will assist with vehicle simulations and vehicle data analysis. (Student must be reasonably proficient with Matlab, and have an interest in Vehicle Dynamics).
- 4) **C130 Propeller Balance System:** The candidate will assist with laboratory testing and development of new Active Balancing control technology for reducing vibration on aircraft propellers. In addition, student will assist in performing risk reduction environmental laboratory testing on the balancer technology. (Mechanical, Aerospace, Software or Electrical Engineering)
- 5) **Electronics Power Amplifier Development:** The candidate will assist in the development of a low frequency Pulse Width Modulated (PWM) power amplifier drive, integrate it into one card(the initial proto will be a two card arrangement using a COTS

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computer demo board with a specializing card on top with the driver hardware), package it into a cinch COTS plastic enclosure and validate the EMI and thermal performance. (Electrical Engineering)

Application Selection & Process

The NC Space Grant/Lord Corporation Summer Internship Program is open to current 2008-2009 undergraduate and graduate students who are enrolled in a STEM degree program at one of the NC Space Grant eleven member institutions.

Applications must be submitted via email, and can be downloaded [here](#). The deadline for submission of applications is Friday, March 6, 2009. Submit the online application and your resume to Jobi_Cook@ncsu.edu.

Applications will be reviewed by NC Space Grant staff and Lord Corporation project researchers. The review committee will examine a number of criteria including academic achievement, resume, career goals, and references.

The NC Space Grant/Lord Corporation Summer Interns will be announced by April 1, 2009.

Award Amount and Requirements

The total value of the NC Space Grant/Lord Corporation Summer Internship Program is \$9,500 per student. Students will be paid a stipend of \$7,000 by Lord Corporation. NC Space Grant will provide \$2,500 for living expenses.

Selected students will be treated as Lord Corporation employees. As such, students will be asked to sign intellectual and non-disclosure agreements for Lord.

To ensure that all award requirements are met, selected students will be required to sign an acceptance letter. Furthermore, students will be required to submit a brief report (500-1000 words) that describes the impact of the internship on their educational and professional goals.

Frequently Asked Questions

Q: What are the eligibility requirements?

A: Any student may apply as long as they meet the following requirements:

- Junior standing or higher, including graduate students in the 2009-10 academic year;
- US citizen;
- GPA of 3.0 or higher;
- Major in STEM discipline. Examples of related degrees include, but are not limited to, mechanical and aerospace engineering, materials science, physics, chemistry;
- Attend one of the NC Space Grant member institutions.

Q: If I am selected as a Summer Intern, what are my obligations?

A: The Intern's responsibilities are to:

- Accept the internship offer and sign an acceptance letter;
- Complete all Lord Corporation personnel information;
- Submit a brief report describing the impact of the internship on their educational and professional goals.

Q: Will I be guaranteed a job when I graduate?

A: No, but with the increasing shortage of professionals in science, technology, engineering, and math related fields, there will be a strong demand for a highly skilled workforce.

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Q: How many interns will be selected?

A: The NC Space Grant/ LORD Summer Internship program is highly competitive. Only two internships will be chosen for Summer 2009.

Contact Information

Questions regarding this announcement should be directed to Dr. Chris Brown, Director, or Ms. Jobi Cook, Associate Director, of the NC Space Grant at scholarships@ncspacegrant.org or (919) 513-2457.