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UNIVERSITY LETTER

UND'S FACULTY/STAFF NEWSLETTER

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University Letter is published electronically weekly on Tuesday afternoons. Submissions are due at 10 a.m. Tuesday.

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TOP STORIES

Volunteers needed for summer commencement Aug. 4

Summer commencement will be held Friday, Aug. 4, at the Chester Fritz Auditorium. Volunteers are needed to seat guests, organize the graduates, and greet campus visitors attending the ceremony.

Commencement begins at 3 p.m. and volunteers are asked to report to the lower level of the Chester Fritz Auditorium by 1:30 p.m. for a short briefing. We anticipate that Commencement will conclude by 4:15 p.m.

Please contact the Office of Ceremonies and Special Events at 777-6393 or e-mail dawnbotsford@mail.und.nodak.edu by Friday, July 28, to let us know if you can assist with this event. Feel free to call if you have any questions.

-- Dawn Botsford, Events Coordinator, Office of Ceremonies & Special Events, dawnbotsford@mail.und.edu,

Thunderbird presentation at UND Aerospace July 21

In conjunction with the July 22 GFAFB air show, one pilot and one crewmember from the featured performers, Thunderbirds, have offered to give a presentation to UND students, faculty, and staff Friday, July 21, from 9 to 10:30 a.m. in 210 Clifford Hall. The event is free and also open to the public.

The Thunderbirds squadron is an Air Combat Command unit composed of eight pilots (including six demonstration pilots), four support officers, three civilians and more than 130 enlisted personnel performing in 25 career fields.

A Thunderbirds air demonstration is a mix of formation flying and solo routines. The four-aircraft diamond formation demonstrates the training and precision of Air Force pilots, while the solo aircraft highlight the maximum capabilities of the F-16. The pilots perform approximately 30 maneuvers in a demonstration. The entire show, including ground and air, runs about an hour and 15 minutes. The season lasts from March to November, with the winter months used to train new members.

Officers serve a two-year assignment with the squadron, while enlisted personnel serve three to four. Replacements must be trained for about half of the team each year, providing a constant mix of experience. The squadron performs no more than 88 air demonstrations each year and has never canceled a demonstration due to maintenance difficulty. More than 280 million people in all 50 states and 57 foreign countries have seen the red, white and blue jets in more than 3,500 aerial demonstrations.

In addition to their responsibilities as the official U.S. Air Force aerial demonstration team, the Thunderbirds are part of our combat force. If required, the team's personnel and aircraft can be rapidly integrated into a fighter unit at Nellis Air Force Base, Nevada. Since the aircraft are only slightly modified, they can be made combat-ready in less than 72 hours.

-- UND Aerospace.

EVENTS TO NOTE

Center for Innovation sponsors program on N.D. economy

"North Dakota's Strategy for Growth in the 21st Century: A Rural Economy in Transition" will air live on Cable Channel 3 from 2 to 3 p.m. Thursday, July 20. The program, produced by the National Association of Regional Councils in conjunction with the United States Economic Development Administration, will feature North Dakota and its economic growth over the past five years. The show is titled, "North Dakota's Strategy for Growth in the 21st Century: A Rural Economy in Transition."

The program will be moderated by Matthew E. Crow, director of communications with the EDA, U.S. Department of Commerce. Featured guests will be:

- * Gov. John Hoeven, who has clustered the five industries of energy, value-added agriculture, high-technology business services, tourism and advanced manufacturing to spur economic growth.
- * Shane Goettle, commissioner of the North Dakota Department of Commerce.
- * Philip Boudjouk, vice president of Research Creative Activities and Technologies Transfer; North Dakota State University Research and Technology Park, Inc.

* Fred Stern, plant manager, Great Plains Synfuels Plant, Beulah, N.D.

* Al Christianson, North Dakota business services representative, Great River Energy (Coal Creek Station), Underwood, N.D.

North Dakota was chosen as the state to be featured in this telecast for a number of reasons. It is one of only two states, in the past five years, to grow its advanced manufacturing industry with the creation of 1,900 jobs. It is also among the leaders in per capita personal income growth with an increase of 25 percent between 2000 and 2004.

The Center for Innovation will sponsor the broadcast. The program will be re-broadcast at noon and 7 p.m. on Friday, July 21; Monday, July 24; Tuesday, July 25; and Wednesday, July 26.

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McCannell-Unger art exhibition opens July 31

Melinda McCannell-Unger, master of art graduate student, will open her exhibit in enamel and small metals, "Shema Mezuzah" July 31 from 5 to 7 p.m. at the Empire Arts Center. The exhibit continues through Aug. 31. Everyone is welcome to attend.

-- Melinda McCannell-Unger, MFA-Visual Arts graduate student, Art,
melindamccannellunger@und.nodak.edu, 701-777-4756

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U2 workshops listed

Below are U2 workshops for August 8-17. Visit our web site for more.

Basic Windows: Aug. 8, 2 to 4 p.m., 361 Upson II. Prerequisite: Basic understanding of computers: mouse and file saving/retrieving skills. Introduces very basic Windows features, keeping your desktop tidy, change desktop color, create a desktop shortcut, change or set the date/time, Windows XP start menu, change themes, menu features, Windows XP taskbar overview, organize files, work with windows, create an efficient work environment, and find information. Presenter: Heidi Strande.

Defensive Driving: Aug. 8, 6 to 10 p.m., 211 Skalicky Tech Incubator. This workshop is required by state fleet for all UND employees who drive state vehicles on a regular (monthly) basis, received a traffic violation, or had an accident while operating a state vehicle. Employees are encouraged to bring a family member (spouse and/or dependents). This workshop may also reduce your North Dakota insurance premiums and could possibly remove points from your driving record. Presenter: Officer Dan Lund.

Basic Word: Aug. 9, 2 to 4 p.m., 361 Upson II. Prerequisite: Basic understanding of computers: mouse and file saving/retrieving skills. Introduces very basic Word features; create a document, edit and format text, format paragraphs, save file, retrieve file, format text, cut and copy, add tables, proof a document, set display and print options. Presenter: Heidi Strande.

Performance Management and Progressive Discipline: Aug. 10, 9 to 11 a.m., 305 Twamley Hall. Supervisors will learn the fundamentals of conducting honest, fair, and consistent evaluations and receive guidelines for using a progressive discipline system. Presenter: Joy Johnson and Desi Sporbert.

Basic Excel: Aug. 10, 2 to 4 p.m., 361 Upson II. Prerequisite: Basic understanding of computers: mouse and file saving/retrieving skills. Introduces very basic Excel functions; basics of a spreadsheet (column, row, cell), entering data, edit data, formulas (formula wizard), copying Excel formulas (autofill), absolute reference, selecting cells, formatting numbers and text in spreadsheets, autofit, inserting column and rows, create and modify charts, set display and print options. Presenter: Heidi Strande.

Enrich Your Life Through Effective Time Management: Aug. 16 and 23, 1:30 to 4:30 p.m., 211 Skalicky Tech Incubator. Fee is \$45. This workshop will show you how to manage your life better by managing your time better. Learn to identify priority tasks and how to accomplish these tasks in the allotted amount of time. You will establish a framework for daily planning and goal setting and to manage your time more effectively. You will also develop strategies to implement time-management practices into both your personal and professional life. Presenter: Gretchen Schatz, Workforce development trainer.

Records Disposal Procedures: Aug. 17, 1:30 to 3 p.m., Memorial Room, Memorial Union. Learn more about the process for destroying or transferring records that have passed their retention time limits. We'll review the forms used, discuss why it's necessary to document, and take part in a hands-on run-through of the entire process. It's fun to clean out, and easier to do than you think. Now's the time to do it! Presenter: Chris Austin, records manager.

Please reserve your seat by registering with U2 by: phone, 777-2128, E-mail, U2@mail.und.nodak.edu, or online, www.conted.und.edu/U2/. Please include: (1) workshop title/ date, (2) name, (3) department, (4) position, (5) box number, (6) phone number, (7) e-mail, and (8) how you first learned about this workshop. Thank you for registering in advance; it helps us plan for materials and number of seats.

-- Julie Sturges, Program Assistant, U2, U2@mail.und.edu, 777-2128

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Break the Silence tour dates set

Community Violence Intervention Center, 211 S. Fourth St., is hosting a one-hour Break the Silence Tour to find out more about violence in our community and get a firsthand view of what CVIC is doing about it.

Tour dates are Thursdays at 11 a.m.: Aug. 17, Sept. 14, Oct. 19, Nov. 16, 11 a.m.; and Dec. 14. You may arrange for a special tour just for your group or organization. No solicitations will be made.

For more information, contact Edie Dahlen, director of development at 746-0405 or edie@cviconline.org. Space is limited, so sign up early.

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Wellness Center grand opening set for Sept. 25

Save the date for the opening of the UND Student Wellness Center. Although the building will not be ready in time for the original August opening, the party will still go on. Mark your calendars for Sept. 25 and tell your friends and family to join you from 3 to 6 p.m. at the UND Student Wellness Center. This one-time event is open to the community! Don Hensrud, Grand Forks native and author of several Mayo Clinic cookbooks, will be sharing healthy cooking ideas that are quick and easy on a small budget. You'll also have a once-in-a-lifetime opportunity to participate in a chef-off between UND's First Lady, Adele Kupchella, and Mr. Kim Holms, owner of Sanders 1907 and celebrity chef in Grand Forks.

At 7 p.m., the UND Student Wellness Center will re-open the doors for business. Membership is required for entrance and you must have an UND ID. UND faculty and staff membership is free from Sept. 25 through Oct. 1.

This is the opening that we've all been waiting for. Come and be a part of the excitement!

-- Amanda Anderson, Assistant Director of Wellness Marketing, Wellness Center,

amandaanderson@mail.und.edu, 777-0486

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ANNOUNCEMENTS

Blackboard upgrade to 7.1 scheduled for Aug. 9-14

The Center for Instructional and Learning Technologies and Information Technology Systems and Services has scheduled an upgrade for the main campus Blackboard Learning System from 6.3 to 7.1. The upgrade process and end-of-semester maintenance will begin Wednesday, Aug. 9, at 8 a.m. During this upgrade, Blackboard will be unavailable for faculty and students. The upgrade will be completed by Monday, Aug. 14, and Blackboard 7.1 will be available, including new and enhanced features.

Learn more about the new and enhanced features by copying and pasting this url into your web browser.

<http://online.und.edu/Bb6/Bb7Newfeatures.html>

-- *CILT/ITSS, Blackboard System Admin, CILT/ITSS, blackboard@mail.und.edu, 777-6305*

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Daily specials listed for Twamley Snack Bar

July 25: Firecracker Chicken Wrap, Carrots and Celery, Potato Salad; Grilled Reuben with Fruit Cup; Sloppy Joes with Chips; Soup of the day is Chili.

July 26: Rotisserie Turkey, Whipped Potatoes, Corn; Soup of the day is Harvest Vegetable.

July 27: Beef or Chicken Taco Salad, Refried Beans; Soup is White Cheddar Broccoli.

July 28: Chicken Pot Pie with Fresh Fruit Cup; Soup is Chicken Tortilla.

-- *Tammy Kaiser, Snack Bar Supervisor, Food Service, tammykaiser@mail.und.edu, 777-3934*

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ND EPSCoR announces UND doctoral dissertation awards

The North Dakota Experimental Program to Stimulate Competitive Research (ND EPSCoR) has announced the 2006 Doctoral Dissertation Assistantship (DDA) awards at the University.

ND EPSCoR's DDA awards are designed to increase the completion rate of Ph.D. students enrolled in the science, engineering, and mathematics disciplines at North Dakota's research-intensive universities; and to increase the number of competitive proposals submitted to the National Science Foundation. Peter Alfonso, ND EPSCoR co-chair and vice president for research at UND, noted that "the overall goal of ND EPSCoR is to increase the competitiveness of North Dakota for merit-based grants and contracts in support of science and technology research from federal funding agencies."

DDA support is available for up to 24 months to enable students to dedicate their time exclusively to dissertation research. Applications are made by the students with supplemental information provided by their advisors, along with endorsement from their graduate program director and department chair.

The seven awards made at UND were competitively selected from a total of 11 applications. Gary Johnson, ND EPSCoR co-project director and assistant vice president for research at UND, noted that "this is the largest number of DDA awards made in the history of the program at UND. The review committee was very impressed by the overall quality of the proposals".

The 2006 DDA students, their departments and faculty mentors, and the topic of their approved research proposals are as follows:

Christian Biaku, (Chemical Engineering), advisor * Michael Mann, "Large Scale Integration of Electrochemical Stacks with Distribution Networks: An Impedance Spectroscopy Approach"

- * Lata Balakrishnan (Biochemistry), advisor Barry Milavetz, "Characterization of histone modifications during transcription"
- * Sunitha Bollimuntha (Biochemistry), advisor Brij Singh, "TRPC3 and Neurosecretion"
- * Kristin Hillman (Pharmacology, Physiology and Therapeutics), advisor James Porter, "Adrenergic Modulation of CA 1 Hippocampal Circuitry"
- * Karthik Krishnan (Microbiology), advisor Ann Flower, "Regulatory Roles of Bip A in Escherichia coli"
- * Christopher Knudson (Anatomy and Cell Biology), advisor Patrick Carr, "The Distribution of Adrenergic Receptors in the Rodent Hippocampus"
- * James Maskey (Biology), advisor Rick Sweitzer, "Population Ecology of Moose in North Dakota: Movements, Habitat Use, Diets, and Parasitic Disease"

For additional information concerning ND EPSCoR or the DDA program, please contact Gary Johnson, co-project director, ND EPSCoR, 415 Twamley Hall, UND, Grand Forks, ND 58201-7093, 701-777-2492.

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NIH announces change in grant submissions

The National Institutes of Health has issued a reminder to the research community that the following grant programs will transition to electronic submission of the SF424 (R&R) form through Grants.gov for applications intended for the Oct. 1, 2006, submission date and beyond.

- Research Demonstration and Dissemination Projects (R18/U18)
- Research Facilities Construction Grants (CO6/UC6)
- Education Projects (R25)

All applications in response to announcements for these grant programs must be submitted electronically (i.e., paper-based PHS 398 applications will not be accepted). Applications that were first submitted in paper and are being resubmitted as amended applications must now use electronic submission via Grants.gov using the SF424 (R&R) forms.

The following resources continue to be available for assistance in the electronic submission of grant applications to NIH/AHRQ through Grants.gov:

General Information:

<http://era.nih.gov/ElectronicReceipt/>

<http://www.ahrq.gov/path/egrants.htm>

Grants.gov Customer Support

Phone: 800-518-4726

Hours: M-F 7 a.m. to 9 p.m. ET

E-mail: support@grants.gov

eRA Commons Help Desk

Web: <http://ithelpdesk.nih.gov/eRA/>

Phone: 301-402-7469 or 866-504-9552 (Toll Free)

TTY: 301-451-5939

Hours: M-F 7 a.m. to 8 p.m.

Inquiries

Grants Info

Office of Extramural Research

National Institutes of Health

Phone: 301-435-0714

TTY: 301-451-0088

E-mail: grantsinfo@nih.gov

-- Barry I. Milavetz, Associate Vice President for Research, Research Development and Compliance,

barrymilavetz@mail.und.edu, 701/777-4278

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NIH has changed electronic grant application forms

To provide greater consistency between forms and align forms with current policy, the standard SF424 (R&R) and agency-specific PHS 398 components used for electronic submission of grant applications have been changed as follows:

- Four new sections added to the PHS 398 Research Plan: Inclusion Enrollment Report and Progress Report Publication List (previously part of section 4) are separate attachments; Preliminary Studies/Progress Report are separate sections (to avoid being counted in page limit); new sections were added for Select Agent Research and Multiple PI Leadership Plan. Previous sections have been renumbered. The Data and Safety Monitoring section has been eliminated from the Research Plan Component, and is a subtopic within section 8, Protection of Human Subjects.
- The itemized list of policies, assurances, and certifications has been removed from the PHS 398 checklist; applicants are instructed to consult a web site.
- State Code List has been updated to include U.S. possessions, territories, military codes.
- Address field for province has been added.
- Enumeration values containing abbreviations and full descriptions have been standardized with a format of abbreviation, colon space, full description (e.g. AK: Alaska).
- Type of applicant pick-list expanded (SF424 (R&R) cover component field 7).
- Field length adjustments have been made to: congressional district; employer identification (EIN/TIN, note the agency-specific instruction has been revised to request the full 12-digit number be entered if one has been established for grant awards); organization name; opportunity ID; and competition ID.
- Grants.gov form hover text has been updated

Forms changes will be included in all new Funding Opportunity Announcements (FOAs) NIH/AHRQ posts. Over the next few months, NIH/AHRQ will update existing FOAs that use older forms and are open for multiple receipt dates. Until all FOAs are modified to use new forms, two form packages and associated application instructions will be maintained/supported.

The forms update plan and its affect on applicants is:

- For new FOAs (release/posted date after June 15), the application package attached to the FOA will contain the new forms and application guide; that form/guide MUST be used.
- For older FOAs (release/posted date before June 15):
 - FOAs with a single receipt date (typically NIH/AHRQ RFAs and PARs) will be evaluated and, in most cases, allowed to close with no change to the form package.
 - For older FOAs with multiple receipt dates, pay close attention to the form set used to create the application package. NIH is targeting July 5-15 to update older FOAs for the R03, R15, R21, R21/R33, R33 and R34 grant programs and September 9-15 to update older FOAs for the R43/R44 and R13/U13 grant programs with new form packages. Once new form packages are in place for an FOA, the old form package will not be accepted; applications "in the works" must be moved to the new form package. Updates have been timed to occur well in

advance of the next standard receipt date of each program.

- To assist you in identifying the form version used to create an application package, NIH/AHRQ will populate the competition ID (which appears at the top of the page when you open an application package with the PureEdge viewer) of new forms packages with the label "Version 2 Forms"; the appropriate application guides will be labeled version 1 and version 2 on the cover page/within footers.
- For a short period of time, both old and new form packages will be available for download. Whenever there is a choice, the package labeled "Version 2 Forms" in the competition ID field should be used. To help in the transition, NIH will develop a splash screen to alert users to select the version 2 package. However, the splash screen only will be visible when using the download button from within the NIH Guide FOA.

The NIH Guide for Grants and Contracts, NIH Electronic Submission of Grant Applications web site and eSubmission listservs will be used as primary communication channels for these activities. Additional notices will be sent when updates take place. When changes are made to the FOAs, anyone subscribed to receive notification of changes will receive an automated email from Grants.gov.

The following resources are available for assistance in electronic submission of grant applications to NIH/AHRQ through Grants.gov:

General information: <http://era.nih.gov/ElectronicReceipt/>; or <http://www.ahrq.gov/path/egrants.htm>.

Grants.gov customer support: 800-518-4726; or support@grants.gov

eRA Commons help desk: <http://ithelpdesk.nih.gov/eRA/>; 301-402-7469, 866-504-9552 (Toll Free); or 301-451-5939 (TTY).

Inquiries: Grants Info, Office of Extramural Research, NIH; 301-435-0714 or 301-451-0088 (TTY); grantsinfo@nih.gov.

-- Barry I. Milavetz, Associate Vice President for Research, Research Development and Compliance,
barrymilavetz@mail.und.edu, 701/777-4278

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Nominees sought for Governor's Award for Excellence in Public Service

The Governor's Award for Excellence in Public Service recognizes the outstanding work performance of our state employees and their contributions to their agencies, professions and communities. I encourage you to nominate your fellow state employees for this award, acknowledging their commitment to excellence in serving the citizens of this great state.

Nominations will be accepted from the legislative, judicial and executive branches of state government. Nominees must be employed a minimum of half time with one full year of employment. More than one employee can be nominated from an agency or department, but each nomination must be limited to one individual.

A five-member committee consisting of a public member at large and representatives from the Council on State Employees will screen the nominations and make recommendations in the following six categories:

(1) Executive/Administration; (2) Professional; (3) Technical/Paraprofessional; (4) Office Support; (5) Trades/Crafts; and (6) Services.

For more information about the award and to submit nominations online or print a nomination form, you can visit the Council of State Employees web site at www.nd.gov/cose. All nominations must be completed on the form provided. Award winners will be announced and recognized at a special awards ceremony and luncheon during State Employee Recognition

Week in September.

Nomination deadline is Friday, Aug. 11. Submit nominations online at: www.nd.gov/cose. Send nominations to:
The Office of the Governor, Attn: Jody Link, 600 East Boulevard Avenue, Bismarck, ND 58505
FAX: (701) 328-2205

-- Jan Orvik, Writer/Editor, University Relations, janorvik@mail.und.edu, 777-3621

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Internal job openings listed

UND provides all eligible regular staff employees the opportunity to apply for vacant staff positions prior to external recruitment. All regular position vacancies will be listed internally for a period of five working days.

Regular staff employees working 20 hours or more per week and not in a six month probationary status are eligible to apply. Eligible employees must submit an Application Form and Applicant Control Card. These forms are available on-line or in the Office of Human Resources, Room 313 Twamley, 777-4361. All internal applications will be screened to determine qualifications. In the event an internal candidate is not selected by the hiring department, external recruitment and selection procedures will proceed as required by the UND Affirmative Action program.

PROFESSIONAL/ADMINISTRATIVE/COACHES:

POSITION: Associate Dean of Student Life/Director of Judicial Affairs and Crisis Programs, Dean of Students, #06-185

DEADLINE: (I) Current UND employee (Internal) applicants will be considered with the External applicants.
Open until filled (Review of applicants will begin April 15, 2006)

SALARY: Commensurate with experience

POSITION: Associate Vice President for Outreach Services and Dean of Outreach Programs, #06-114

DEADLINE: (I) Current UND employee (Internal) applicants will be considered with the External applicants.
Review of candidates will begin December 1, 2005 and will continue until the position is filled.

SALARY: Commensurate with experience

TECHNICAL/PARAPROFESSIONAL:

POSITION: Assistant Teacher (M-F, 9 am - 5:30 pm), University Children's Center, #07-023

DEADLINE: (I) 7/26/2006

SALARY: \$7.00 - \$8.00

POSITION: ECE Service Supervisor (M-F 9am - 5:30pm), University Children's Center, #07-022

DEADLINE: (I) 7/26/2006

SALARY: \$9.00 - \$10.00

POSITION: Acquisitions Specialist, Chester Fritz Library, #07-021

DEADLINE: (I) 7/24/2006

SALARY: \$19,500 - \$20,085

POSITION: Finance Assistant, Continuing Education, #07-011

DEADLINE: (I) 7/21/2006

SALARY: \$22,000 - \$29,000

OFFICE SUPPORT:

POSITION: Conference Services Specialist, Continuing Education, #07-020

DEADLINE: (I) 7/24/2006

SALARY: \$23,000 - \$28,000

POSITION: Administrative Secretary / Receptionist (Mon -Fri 9am - 1pm), Physical Education and Exercise Science, #07-017

DEADLINE: (I) 7/24/2006

SALARY: \$8.97 - \$10.90

POSITION: Unit Clerk (variable schedule, flexible weekends), Dining Services, #07-015

DEADLINE: (I) 7/21/2006

SALARY: \$8.19 - \$8.44

CRAFTS/TRADES/SERVICE:

POSITION: Building Services Technician (Custodial, Mon- Fri , 8 am - 4:30 pm), Facilities, #07-013

DEADLINE: (I) 7/21/2006

SALARY: \$16,640 - \$22,000

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IN THE NEWS

Richard Schultz explores new approaches to teaching engineering graduate course

Editors Note: Engineering, like medicine and science, is a notably challenging and competitive discipline: lots of math, interesting real-world problems, dauntingly complex textbooks, and a rigorously demanding curriculum. That's the conventional wisdom, and for most students, its also the reality of their engineering programs. But Richard Schultz, associate professor and chair of electrical engineering, says good engineering education doesn't have to be all classroom, textbook grind.

Schultz, who recently was awarded a three-year, \$457,985 Defense EPSCoR grant titled "Real-Time Super-Resolution Automatic Target Recognition of Unmanned Aerial Vehicle-Based Reconnaissance and Surveillance Imagery," says there's a place for tradition in the engineering curriculum, but increasingly complex technologies also demand that students be encouraged to learn engineering concepts in new ways.

In the following Q&A with University Relations writer Juan Miguel Pedraza, Schultz, who has served on UND's graduate faculty committee and has been involved with the University's entrepreneurship education efforts, briefly talks about an upcoming controls engineering class that's set to break -- or at the very least update -- the standard engineering teaching model for a course that is very math intensive.

Q. What sets the engineering discipline apart from, say, history or English?

A. We're typically pretty rigid in engineering when it comes to lecturing and exams, and our classes are not generally discussion-oriented.

Q. You and School of Engineering and Mines Dean John Watson, who wants to see undergraduate engineering students do a lot more hands-on training early in their education, are traveling a new path in engineering -- maybe not quite the way of history or English -- but revolutionary as far as engineering students go. What's this all about?

A. We need to help students learn more real-world problem-solving. We can't do that with textbooks and lectures alone.

Q. So what is your recipe to address this challenge?

A. I'm teaching an advanced controls class this fall (Electrical Engineering) EE 505 Control Systems II without a textbook. It'll be an elective for seniors and graduate students who've already taken EE 405 Control Systems I, which is a requirement in UND's B.S. electrical engineering curriculum. Incidentally, Control Systems I is taught in a very conventional manner using lectures and exams, because it provides the fundamental theory for more practical problem-solving related to industrial controls and robotics.

(Editors Note: In control systems courses, students learn about electrical and/or electronic technology in a broad array of applications such as automotive cruise control, airplane autopilot systems, barcode readers, elevator controls, air conditioning and heating thermostats, and robotics.)

Q. If you're not going to use a textbook, what are you planning to do?

A. Students in this class will be prompted to Google the Net in search of answers to questions and problems posed in class. There will be lots of discussion about key R&D papers that describe working control systems designed and built by students at other universities, such as unmanned ground vehicles and aerial robotic helicopters.

Q. What drove you to try this innovative, nontraditional approach in an advanced engineering course?

A. I got inspired to do this partly after spending a week in June at the Babson-Olin Symposium for Engineering Entrepreneurship Educators with entrepreneurship guru Jeff Timmons of Babson College.

Timmons claims that within 10 years, virtually all knowledge will be on the Web. Maybe we should just use that resource rather than fight it.

A key example of not-by-the-book instruction is the Defense Advanced Research Projects Agency (DARPA) Grand Challenge.

DARPA, the central research and development organization for the Department of Defense (DoD), created the challenge in response to a Congressional and DoD mandate to accelerate research and development in autonomous ground vehicles that will help save American lives on the battlefield. The Grand Challenge brings together academia, government, and industry in the pursuit of solving one of the most daunting technological challenges facing society today.

This project most certainly isn't just about classroom lecturing.

Q. What is the DARPA Grand Challenge?

A. This was a high-profile contest to design, build, and operate an unmanned ground vehicle capable of autonomously navigating difficult terrain that resulted in major advances in artificial intelligence. DARPA put together a really tough course in the middle of the desert, with the goal of having an autonomous vehicle finish it in a limited amount of time.

The DARPA Grand Challenge really promoted hands-on learning in the field, where teams of students took on the challenge and discovered that testing under real environmental conditions really drove their sensor, control, and software designs.

The Grand Challenge probably advanced the field of artificial intelligence more in five years than federal funding has accomplished in the previous 40.

Q. What's emerging here seems to be a new way of teaching engineering that may provide, if not exactly an alternative, then at the very least a strong supplement to traditional classroom teaching methods. Is this correct?

A. Yes, from my experience, engineering students really seem to learn best by doing, to see how to put resources together, to keep a team going, to stay within budget, and still meet end-user requirements. Students also feel gratified to learn that their profs don't have all the answers, and that we learn just as much from them as they learn from us, if we let them.

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