# Volume 4, Issue 3 | September 2012 | http://www.spectrum.niaaa.nih.gov

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES • National Institutes of Health • National Institute on Alcohol Abuse and Alcoholism

### FEATURE

# FACEBOOK OFFERS CLUES INTO COLLEGE DRINKING

Facebook walls may be the latest window into college students' drinking.



Photos of friends proudly displaying alcohol use are common on Facebook pages—and may point to a drinking problem for some. A recent study shows that up to 83 percent of college students' Facebook profiles refer to alcohol (Moreno et al., 2012). Comments such as "I got so drunk last night" or "She was totally wasted at the party" are common. So are photos of friends drinking together and proudly displaying their choice of alcoholic beverage.

These overt references to drinking on social networking sites have grabbed the attention of alcohol researchers. At a time when between 94 and 98 percent of college students have a social networking profile—and most report checking in daily—these profiles could help target college drinking prevention strategies (Moreno et al., 2012).

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### FEATURE

### A VIEW FROM THE TOP—NIAAA TAPS COLLEGE PRESIDENTS TO ADDRESS HARMFUL STUDENT DRINKING

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With the start of another school year, we are bound to start hearing stories of violence, sexual assaults, and other consequences of harmful college student drinking. Despite decades of research and significant investment by colleges and universities, alcohol abuse remains one of the most stubborn problems in higher education.

To help bridge the gap between research that continues to identify promising interventions and the development of real-world campus programs to address alcohol-related problems, NIAAA joined forces with a group of informed and passionate college presidents who are actively addressing these issues on their campuses.

The presidents participating in the invitation-only NIAAA College Presidents Working Group, which addresses harmful student drinking, advise NIAAA on both the types of information they need and the ways they want to receive it. The many talented administrators contributing to this working group are:

Thomas Buchanan, Ph.D., of the University of Wyoming

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#### FEATURE: A View From the Top . . . Continued from page 1



Pictured: Co-chairs Dr. Robert Carothers, president emeritus of the University of Rhode Island (left), and Dr. Jonathan Gibralter of Frostburg State University (right)

- Robert Carothers, Ph.D., J.D., president emeritus of the University of Rhode Island (co-chair)
- Alice P. Gast, Ph.D., of Lehigh University
- Jonathan Gibralter, Ph.D., of Frostburg State University (co-chair)
- Roderick McDavis, Ph.D., of Ohio University
- Mark Nordenberg, J.D., of the University of Pittsburgh
- Harris Pastides, Ph.D., of the University of South Carolina

 Judy Sakaki, Ph.D., vice president of Student Affairs for the University of California system

- David Skorton, M.D., of Cornell University
- Samuel Stanley, Jr., M.D., of Stony Brook University

Jim Yong Kim, M.D.,

Ph.D., Dartmouth's president emeritus and current president of the World Bank, was an original co-chair and hopes to remain involved in the group's activities. All working group members agree that presidents who actively address alcohol-related problems can make positive changes on their campuses and in their communities.

Among the many practical recommendations the presidents made to NIAAA, one stood out—the need for a clear, easy-to-understand tool to facilitate decisions about alcohol intervention strategies. In response, NIAAA engaged some of the top researchers in the field to develop an interactive, user-friendly, online "decision support system" to help colleges and universities select appropriate strategies to meet their alcohol intervention goals. The tool will allow college presidents and staff to review the strategies they are already using as well as explore others that may serve them better. Users will be able to search for strategies according to intervention level (e.g., individual, group, campuswide, community) and evaluate other factors, such as effectiveness and costs, barriers, and timelines, affecting implementation.

Much like online shopping applications, the tool will allow users to select a set of strategies for side-by-side comparisons. In addition, the system will generate reports to allow users to share their selected strategies with colleagues. Ultimately, the goal of the decision support system, and the working group in general, is to share sciencebased information in accessible and practical ways to provide college administrators with a foundation for alcohol intervention activities.

### NEWS FROM THE FIELD

## EXAMINING COLLEGE DRINKING STYLES BEYOND SIMPLY "HOW MUCH?" AND "HOW OFTEN?"

A study of college freshmen offers a multifaceted look at students' drinking styles by examining individual patterns of protective and risk behaviors. Based on student responses to a Web-based survey, researchers identified three distinct categories of drinking. They found that only 10 percent of students drank in an arguably safe manner, frequently using protective behaviors (e.g., pacing one's drinking, setting limits on the number of total drinks), while rarely engaging in risk behaviors (e.g., pregaming, participating in drinking games). Protective behaviors have been shown to reduce levels of alcohol

consumption and alcohol-related consequences, while risk behaviors have the opposite effect.

The majority of students (60 percent) engaged in both risk and protective behaviors in equal measure, while 30 percent reported frequent high-risk behaviors and little use of protective strategies. Men were more likely than women to belong to the last group, while students who began drinking at an older age were more likely to belong to the first group, using protective strategies frequently and demonstrating few risk behaviors.



Only 10 percent of college students drink in a safe manner, frequently using protective behaviors and rarely engaging in risk behaviors.

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### NIAAASPECTRUM

### **FEATURE:** Facebook Offers Clues . . . Continued from page 1

Drinking—often and to excess continues to be a part of college culture. Virtually all college students experience the effects of college drinking, whether they drink or not. Each year, an estimated 599,000 students between the ages of 18 and 24 are unintentionally injured under the influence of alcohol (Hingson et al., 2009). About 1,825 college students between the ages of 18 and 24 die each year from alcoholrelated injuries, including car crashes (Hingson et al., 2009).

Colleges use a variety of prevention and intervention strategies to help address drinking on campus. Some target individual students; others target the entire student body, the broader college community, or both.

In 2010, NIAAA hosted a workshop on adding social networking approaches to prevention and intervention strategies. "We brought together 12 experts from around the country to share information with the Institute and form working relationships with each other," explained Robert Freeman, Ph.D., Health Sciences administrator at NIAAA, who organized the workshop.

The workshop helped generate a panel on the topic at the 2011 Research Society on Alcoholism Conference as well as some new studies.

NIAAA supported two of these studies, published this year by a team led by Megan Moreno, M.D., a pediatrician on the faculty at the University of Wisconsin School of Medicine and Public Health. One study examined public Facebook profiles of more than 300 undergraduate students at the University of Wisconsin–Madison and the University of Washington–Seattle.

"We found that underage college students who referenced dangerous drinking habits, such as intoxication or blacking out, were more likely to have responses on the Alcohol Use Disorders Identification Test, or AUDIT [a screening tool that clinicians use to measure problem drinking], that indicate problem drinking or alcoholrelated injury," said Dr. Moreno.

The other was a qualitative study based both on Facebook posts and on oneon-one interviews with more than 130 college freshmen.

"Students said they would most want their peers to approach them if their Facebook posts indicated a lot of drinking," said Dr. Moreno. Peers, such as resident advisors, campus organization leaders, and alcohol educators, have natural connections with students, especially because they have Facebook pages themselves.

Dr. Moreno also explained that students expect to receive feedback from their postings.

"Students, especially freshmen, grew up with Facebook. They are used to this shared community. Students told us that if they posted about drinking on their profiles, they would be willing to listen to someone offering feedback in the right way," Dr. Moreno said.

According to her research, students are most likely to respond when inquiries about their drinking are respectful, empathetic, and nonjudgmental.

Dr. Moreno described a potential peer approach supported by their study, "Show that you're worried about me and care about me—ask me questions, rather than accuse me of things. For example, you can say, 'I know you've had a hard week and I saw from your FB postings that you got really drunk this weekend. Are you okay?"" "This is motivational interviewing in a nutshell," she said.

Questions like these can serve as a bridge to connect students to the help they need.

"We can't transform peers into health care professionals, but we can help peer leaders ask the right questions in the right way and then point students to the right resources," said Dr. Moreno.

In future research, Dr. Moreno hopes to analyze YouTube videos and Twitter posts to identify students who need help.

Other researchers are investigating further ways to harness the power of social networking. For example, Jennifer Whitehill, Ph.D., a postdoctoral candidate at the University of Washington, is studying how to prevent alcohol-related injuries by building an iPhone app that can direct drunk students to the nearest cab. Dana Litt, Ph.D., and Jason Kilmer, Ph.D., also at the University of Washington, are investigating adolescents' perceptions about alcohol based on their Facebook posts. David Jernigan, Ph.D., director of the Center on Alcohol Marketing and Youth at the Johns Hopkins Bloomberg School of Public Health, is studying how alcohol brand presence and social media advertising affect underage and college drinkers.

And while intervening through social networking is a hot research area with a lot of potential, Moreno emphasizes that it's not a silver bullet.

"Facebook is very sexy right now, but it won't fix everything. It's one tool in a larger toolbox of strategies," she said.

#### Sources:

Hingson RW, Zha W, Weitzman ER. Magnitude of alcohol-related mortality and morbidity among U.S. college students ages 18-24: Changes from 1998 to 2005. *Journal of Studies on Alcohol and Drugs Supplement*. 2009 Jul;(16):12-20.

Moreno MA, Grant A, Kacvinsky L, Egan KG, Fleming MF. College students' alcohol displays on Facebook: Intervention considerations. *Journal of American College Health*. 2012 Jul;60(5):388-94.

### BY THE NUMBERS

### ALCOHOL-RELATED DEATHS AMONG U.S. COLLEGE STUDENTS

Researchers led by Ralph W. Hingson, Sc.D., M.P.H., director of NIAAA's Division of Epidemiology and Prevention Research, found that the number of alcohol-related unintentional injury deaths\* among U.S. college students rose from 1,440 deaths in 1998 to 1,825 in 2005.

But during that interval, the number of college students in the country also rose. Was the increase in drinkingrelated unintentional deaths simply a result of a greater number of students? The question calls for a closer look.

It is important to note that no one institution collects all the relevant information. For example, data on traffic incidents—the nation's leading cause of alcohol-related death and injury—do not indicate whether victims are in college.

Consequently, Dr. Hingson and colleagues turned to a number of sources and extracted information from multiple datasets. Their comprehensive overview combined statistics from the Centers for Disease Control and Prevention, the National Highway Traffic Safety Administration, and the U.S. Department of Education, to name just a few sources.



### Alcohol-Related Unintentional Injury Deaths

The numbers speak to the continued seriousness of college alcohol problems. The population of college students climbed from almost 8 million in 1998 to more than 9 million in 2005. Paralleling this rise, both the number and the percentage of alcohol-related deaths increased (see graph). Dr. Hingson cautions, "We can't forget that each of these deaths represents a tragic outcome connected with drinking." He adds, "Through evidencebased prevention and counseling programs at colleges and surrounding communities, we can do more to address this stubborn problem and reduce these unacceptably high figures."

\*The researchers did not include alcohol-related homicides or suicides in their calculations.

#### Sources:

Hingson RW, Zha W, Weitzman ER. Magnitude of alcohol-related mortality and morbidity among U.S. college students ages 18-24: Changes from 1998 to 2005. *Journal of Studies on Alcohol and Drugs Supplement*. 2009 Jul;(16):12-20.

National Institute on Alcohol Abuse and Alcoholism National Advisory Council. A call to action: Changing the culture of drinking at U.S. colleges, NIH Publ. No. 02–5010. 2002.

### NEWS FROM THE FIELD: Examining College Drinking . . . Continued from page 2

Notably, social awareness behaviors, such as watching one's drink being made or walking home with friends, was the most common form of protective behavior used. The authors suggest that such methods may be popular because they are not directly tied to limiting consumption.

The study authors conclude that alcohol interventions on campuses might be

improved by addressing both protective and risk behaviors together. Many types of interventions focus mainly on promoting behaviors that reduce alcohol use and related harms, but fail to meaningfully address risk behaviors. For the majority of students, who sometimes use protective strategies but also engage in risk behavior, focusing on both may be of particular benefit. It may also be helpful in social norms campaigns

to highlight that, based on the study findings, 70 percent of students use protective strategies at least some of the time while drinking.

The article abstract can be found here:

Patterns of drinking-related protective and risk behaviors in college student drinkers

http://www.ncbi.nlm.nih.gov/ pubmed/22281283

### NIAAASPECTRUM

### **NEWS FROM THE FIELD**

# ALCOHOL INCREASES RISK TAKING BY ALTERING REWARD CIRCUITRY IN THE BRAIN

A recent brain imaging study provides insight into how alcohol may increase risk-taking behavior. Making a risky choice while intoxicated appears to increase activation in a region of the brain associated in part with reward. In turn, alcohol also dampens the brain's response to information about the outcome of the decision, regardless of whether the result was positive or negative.

People who reported feeling stimulated by alcohol took the greatest number of risks while playing a simulated gambling game, suggesting that these individuals may be most prone to impulsivity and risk taking while drinking.

In the study, 20 social drinkers underwent functional magnetic resonance imaging while playing a game in which they were asked to choose between two boxes. One box would net them a guaranteed \$.25, while the mystery box could result in a \$1.00 or \$5.00 win, with the risk that they also could lose the same amount. Ultimately, participants who played the game while legally intoxicated were more likely to make risky choices than the control group, selecting the mystery box 64 percent of the time versus 50 percent by the control group. Brain scans revealed that risky choices activated the striatum, the region within the brain thought to be related to reward and decision making in novel situations, and that greater activation was linked to greater risk taking. Alcohol also dramatically dulled the neural response to winning and losing in related areas of the brain (caudate, thalamus, and insula).

These findings suggest that being under the influence of alcohol fundamentally alters reward circuitry in the brain



and impairs the ability to respond appropriately to feedback. The authors hypothesize that drinking may lead to risky behavior by dampening brain activity while assessing a risky choice, thereby altering one's perception of the risk involved.

This article abstract can be found here:

*The effect of intravenous alcohol on the neural correlates of risky decision making in healthy social drinkers* 

http://www.ncbi.nlm.nih.gov/pubmed/21995446

### **NEWS FROM THE FIELD**

# STUDY FINDS INCREASED RISK FOR ALCOHOL USE DISORDERS AFTER WEIGHT-LOSS SURGERY



Bariatric surgery is an effective and increasingly common procedure to help patients lose weight. But a recent study found patients face a significantly higher risk of alcohol use disorders (AUDs) following the procedure than obese people who have not had bariatric surgery.

Researchers with the Longitudinal Assessment of Bariatric Surgery, a consortium funded by the National Institutes of Health, investigated drinking behavior and AUD symptoms in 1,945 patients undergoing weightloss surgery. Both before and after their surgery, study participants completed the Alcohol Use Disorders Identification Test (AUDIT), which identifies signs of alcohol abuse and alcohol dependence. Researchers classified patients as having an AUD if they demonstrated any of the following:

- A score of 8 or higher out of 40 on the AUDIT
- One or more dependence symptoms as measured by the AUDIT, such as being unable to limit drinking after starting, needing to start the day with a drink, and being unable to fulfill normal responsibilities due to drinking
- One or more symptoms of alcoholrelated harm as measured by the AUDIT, such as having memory lapses, feeling guilty about drinking, hurting someone else, or having others worry about their drinking

### A CLOSER LOOK

# COLLEGES OFFER STUDENTS A WAY OUT DURING ALCOHOL EMERGENCIES

The standing stick figure in the Cornell University poster (pictured here) is facing a tough choice. His friend has collapsed in a potential alcohol-related medical emergency. He could do nothing—and hope for the best. Or he could seek help for possible alcohol poisoning and risk disciplinary consequences for violating campus drinking policies. Pretty much a no-win situation.

But Cornell students now have another option. Cornell has joined many other colleges and universities with policies offering disciplinary immunity to students who report alcohol-related emergencies involving campus alcohol policy violations. These medical amnesty, good Samaritan, or alcohol emergency programs share a common goal—to encourage students to help friends in trouble.

For example, Purdue University and the University of Central Florida just implemented policies designed to help underage drinkers get assistance more easily for themselves or others who have had too much to drink. In 2011, the University of Florida announced a policy that waives disciplinary action when students call for medical help for themselves or their friends during alcohol, drug, or other health emergencies.

Advocates of medical amnesty and good Samaritan policies assert that reducing barriers to help-seeking behaviors can help prevent deaths and other serious consequences of alcohol poisoning. Opponents argue that by removing disciplinary consequences for campus alcohol violations, such policies may encourage alcohol abuse among students.

Evidence of the policies' effectiveness remains sparse, but suggests that they might be a useful component of strategies to address college alcohol problems. A case study of Cornell University's Medical Amnesty Protocol reported that alcoholrelated calls for emergency medical assistance increased for the first 2 years following the protocol's implementation in 2002 (Lewis and Marchell, 2006). The study also noted that students were less likely to report fear of getting an intoxicated person in trouble as a barrier to calling for help and that the percentage of students who received a brief educational intervention after an alcohol emergency more than doubled by the end of the second year of the protocol.

According to Cornell University's Gannett Health Services, calls to 911 have continued to increase since the protocol was implemented, although the number of



Poster used with permission from Cornell University's Gannett Health Services.

transports to the hospital has not (Gannett Health Services, 2012).

Other researchers recently concluded that medical amnesty policies should be coupled with educational strategies that help students recognize symptoms of alcohol poisoning (Oster-Aaland et al., 2009). They found that students need a better understanding of which symptoms require immediate action and that students should be instructed to err on the side of caution.

Gannett Health Services. Cornell University EMS Alcohol-Related Calls and Hospital Transports. Retrieved July 30, 2012, from *http://www.gannett.cornell.edu/cms/campus/drugs/upload/AOD-Poster\_JULY.pdf*.

Lewis DK, Marchell TC. Safety first: A medical amnesty approach to alcohol poisoning at a U.S. university. *International Journal of Drug Policy*. 2006 Jul;17(4):329-38.

Oster-Aaland L, Lewis MA, Neighbors C, Vangsness J, Larimer ME. Alcohol poisoning among college students turning 21: Do they recognize the symptoms and how do they help? *Journal of Studies on Alcohol and Drugs*. 2009 Jul;(16):122-30.

### NEWS FROM THE FIELD: Study Finds Increased Risk . . . Continued from page 5

The most common weight-loss procedure in these patients was Roux-en-Y gastric bypass surgery (RYGB). Among participants who had this procedure, the prevalence of AUDs increased from 7 percent before surgery to 10.7 percent 2 years after the procedure. The findings appeared in the June 20, 2012, issue of the *Journal of the American Medical Association*. The study's lead author, Wendy King, Ph.D., assistant professor in the Department of Epidemiology at the University of Pittsburgh Graduate School of Public Health, notes that doctors should educate patients about the potential of bariatric surgery, in particular RYGB, to increase the risk of AUDs. She adds, "In addition, alcohol screening and, if indicated, referral should be offered as part of routine preoperative and postoperative clinical care. Further research should examine the long-term effect of bariatric surgery on AUDs, and the relationship of AUDs to postoperative weight control."

Sources:

### NIAAASPECTRUM

### NEWS FROM THE FIELD

# HISPANIC IMMIGRANTS' DRINKING HABITS CHANGE AS THEY ADOPT U.S. CULTURE



People who immigrate to a new country undergo "acculturation," a process of adopting new cultural traditions and values. Among U.S. Hispanic immigrants, several studies have reported that acculturation is associated with increased drinking and binge drinking.

To better understand this link, Patrice A. C. Vaeth, Dr.P.H., M.P.H., and colleagues at the University of Texas School of Public Health in Dallas analyzed data from the 2006 Hispanic Americans Baseline Alcohol Survey (HABLAS). The HABLAS project interviewed 5,224 adult Hispanic men and women in Houston, Los Angeles, Miami, New York, and Philadelphia. The study



identified four distinct national groups: Cuban Americans, Mexican Americans, Puerto Ricans, and South/ Central Americans.

The research team found that Mexican American men, followed

by Puerto Rican men, consumed the highest number of drinks per week, but this pattern was not associated with any particular level of acculturation. For Puerto Rican men, the effects of "acculturation stress," which can stem from difficulties with language and other challenges, were associated with consuming 12 or more drinks in a day. But overall, among the men surveyed, the analysis did not show links between acculturation and drinking volume or behavior.

Among Hispanic women, a different picture emerged—the researchers reported that high acculturation was associated with both a higher volume of drinking and binge drinking. These findings confirm the results of previous studies.

In conclusion, the authors stated, "Among women, there was considerable variation in the way acculturation affected drinking across Hispanic national groups." While not surprising, the variation "underscores the importance of reporting results that are specific to particular national groups," they noted. Information from studies such as HABLAS can contribute to future efforts to develop more effective treatment and preventive interventions for alcohol use disorders that are personalized by important demographic factors.

The article abstract can be found here:

The Hispanic Americans Baseline Alcohol Survey (HABLAS): The association between acculturation, birthplace and alcohol consumption across Hispanic national groups.

http://www.ncbi.nlm.nih.gov/ pubmed/22613057

### **5 QUESTIONS WITH...**



### JONATHAN GIBRALTER, PH.D.

Dr. Gibralter is president of Frostburg State University in Maryland

With everything on your plate as a university president, what led you to focus on the issue of harmful college student drinking?

I became invested in this issue because, early in my career in higher education, my wife, Laurie Gibralter, ran an alcohol and other drug program at Morrisville College in New York. We are still close to several of the students from there who were in trouble with their use and who might not have been successful in college or have even survived, if not for her intervention. A month after I arrived at Frostburg State University in 2006, on Labor Day weekend, a resident of Frostburg was walking home from work late at night and passed by an off-campus party. A student who had been drinking excessively hit him and knocked him to the ground. The Frostburg resident hit his head on the pavement and suffered permanent injuries. The student spent a year in jail, and his family was fined over \$200,000 in damages. Both lives were ruined, and I came face to face with the personal impact of high-risk drinking. At that moment I committed myself to creating a university environment that de-emphasized

alcohol and educated students about how alcohol can put their lives at risk.

2 What would you say to parents and students who believe that excessive drinking is a "rite of passage" and a harmless part of the college experience?

What I say to parents is very simple. I speak at our new student orientations during the summer where I explain to parents that last year 1,825 college students died as a result of high-risk drinking and that many more are the victims of sexual assaults and assaults in general. I tell them that what they remember about having a few beers

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and perhaps even getting drunk once in a while is not what some young people are doing today and that their behavior escalates in college. I simply tell them that my entire focus is on the health, safety, and well-being of Frostburg students. Parents always tell me how grateful they are that I care so much about their children and how relieved they are to know that we focus on this.

### **3** What role should presidents play in addressing this issue?

University presidents are the leaders of their colleges and universities, and faculty and staff look to them for their leadership. It is important that presidents take a leadership role in describing the impact of high-risk drinking, just as we have a role to play in speaking out on any topic that affects the well-being of our students. Students are more likely to miss class and perform poorly in school if they engage in high-risk drinking. The likelihood of students being academically dismissed and unsuccessful also increases. University presidents need to use their voices because it means a lot to their staffs whom they empower to create effective programs. Participating in opportunities like the NIAAA College Presidents Working Group to address harmful student drinking is also critical because it keeps us abreast of the latest research on strategies and allows us to work collaboratively.

#### 4 Harmful college student drinking is a seemingly intractable problem. Despite the intervention efforts of colleges and universities, overall drinking rates among college students have not improved significantly over the past 30 years. Can anything really be done?

When I arrived at Frostburg in 2006, our reported high-risk drinking rate was 57 percent as measured by the nationally normed Core Survey. In 2009, it was 43 percent, which is at the national average. In 2012, we further reduced it to 41 percent. Our goal is to reduce it to 35 percent by 2015, and we believe we will accomplish this. The point is that this can be done—we no longer have to accept that there is nothing we can do and that college students are just going to drink. This isn't really about college students drinking—this is about college students dying.

### **5** Frostburg State University is located in one of the most beautiful parts of the country. Can you tell us something interesting about Frostburg State University and its surroundings?

Frostburg State University is located 2 hours from Washington, DC; Baltimore; and Pittsburgh. We are in the mountains of western Maryland surrounded by the beauty of nature. The Great Allegheny Passage passes right through Frostburg on its way



*Visit http://www.collegedrinkingprevention.gov for more research-based information.* 

from Pittsburgh to Washington and is a great trail for biking and hiking with many bed and breakfasts, and inns, along the way. We are also close to Deep Creek Lake, a pristine mountain lake community with incredible golf, a ski resort, and a white water rafting facility used by the U.S. Olympic team! There is much to do in western Maryland if you love nature and want to get away from the big city. Frostburg State University was founded in 1898 and is now a regional comprehensive university offering both undergraduate and graduate degrees. Our focus is on environmental sustainability and the sciences, and we also have outstanding colleges of education and business-all in an environment that is conducive to study and personal reflection.

### ABOUT US

*NIAAA Spectrum* is NIAAA's first-ever webzine. With engaging feature articles, short news updates, and colorful graphics, *NIAAA Spectrum* offers accessible and relevant information on NIAAA and the alcohol research field for a wide range of audiences. Each issue includes feature-length stories, new research findings from the field, image and data analyses, and an interview with an NIAAA staff member or alcohol researcher. *NIAAA Spectrum* is published three times a year.

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