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**Science of humans**

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Biologists look at slides, engineers at numbers, chemists at elements.

In the social sciences, we research people. Every single academic field within the CHaSS clan looks at the human experience from its own point of view.

So, why does the nearly universal symbol of a “scientist” include a white lab coat?

While the natural sciences look at data and hard evidence, humanities scientists employ methods that are historical, interpretive and analytical in nature — none, in fact, requiring a white jacket. Our professors question common assumptions and pose questions about ways of life and modes of thinking.

A recent national ranking of universities and colleges placed Utah State University at No. 13 overall among more than 300 institutions. The list-makers considered three areas: 1. cutting-edge research, 2. social mobility (recruiting and graduating low-income students), and 3. service and giving-back performed by students.

Because faculty research in CHaSS advances our understanding of fundamental aspects of social life, “our students gain insights that prepare them to adapt effectively to rapidly changing conditions,” said Dean Joe Ward. “It therefore is not at all surprising that USU ranks highly for social mobility because so many of our students understand how society works.”

In this *Liberalis* issue, we spotlight the scholarship of two scientists, sociologist Eric Reither and anthropologist Jacob Freeman. They’re part of a continual flow of important research under way among CHaSS’s professors-social scientists-researchers.

Research in CHaSS ranges from the familial (Kristina Scharp, nationally recognized authority in family communication) to the literary (Phebe Jensen, author of the upcoming reference book, *The Early Modern English Calendar*; from our public institutions (Greg Goelzhauser, who studies the U.S. Supreme Court) to our basic needs (Courtney Flint, co-leader of a vital National Science Foundation-funded project on water sustainability in Utah).

The work is shared in academic journals and books. To see the breadth and depth of CHaSS research, click on the ‘Latest Research’ tab at chass.usu.edu.

*Washington Monthly* released its annual, well-respected ranking of colleges and universities in its September issue. Stanford University and Harvard University topped the rankings. At No. 13, USU fits comfortably between No. 12 (Duke University) and No. 14 (University of California Berkeley).

Also ranked were Brigham Young University at No. 29 overall and the University of Utah, No. 49.

In each of the three categories considered, USU was No. 4 in the nation for social mobility, No. 18 in its students’ service efforts and No. 130 in research. (Comparatively, U of U was ranked No. 235 in terms of service.)

[Read the list here.](http://chass.usu.edu)

Below are stories about two of the many research projects happening at CHaSS.

**Brain vs heart: Why some groups work and others fail**

![Brain vs heart: Why some groups work and others fail](image)
Jacob Freeman, assistant professor of Anthropology, studies how people interact when the pressure is on. A “common pool resource dilemma” is the term scientists use when your untrustworthy neighbor “forgets” to turn the irrigation water to your yard.

Anthropologist Jacob Freeman is an authority on these cases where a resource shared by all is an open temptation for someone to take more than their quota. Think of a community watering hole in a dusty African village, a public campground in the Tetons, or the sea waters used by an alliance of fishermen. Here in Utah, we have the perfect example: water.

In the case of each, everybody has to work together until someone doesn’t. As Freeman explains, “If every individual starts acting selfishly, then the whole resource goes away and nobody can use it.”

The internet describes such an outcome this way: This is why we can’t have nice things.

“What makes a common pool resource situation interesting is there’s always an incentive for an individual to cheat and take as much as they can,” said Freeman, an assistant professor of anthropology. Although that benefits them in the short run, it makes everybody else angry, he added, and it hurts the whole group in the long run.

Freeman is the co-recipient of a large grant by the National Science Foundation that for the last year has funded social experiments to see what types of people would be preferable on a team using a common resource. Preliminary results indicate this: It’s better to be on a team whose members are socially-intelligent rather than just smart-intelligent.

When things are going well, the high-IQ people on your team are great, said Freeman. They spot opportunity easily and quickly work out how to exploit it.

OK, back to the real world, where things often are not great. Then, you’d want to choose people who have what Freeman calls “theory of mind,” or social intelligence. This include emotional intelligence, empathy and the ability to anticipate what others will think or do.

These common pool resource dilemmas pop up all the time in everyday life. What Freeman calls the “temptation to act selfishly” can be merely irritating (as evidenced by the sign in many company break rooms that says, “You mother doesn’t work here”). Or it can be life-threatening.

The National Science Foundation grant of $466,000 to Freeman and two co-researchers illustrates the importance of investigating this seemingly simple, but oh-so-complicated, issue.

“Let’s just put it this way,” Freeman said, “if we already knew everything, the U.S. Army wouldn’t spend millions of dollars on this every year trying to figure out how to make groups better at working together.”

Freeman’s research partners are Jacopo Baggio, assistant professor of Environment & Safety in the Quinn College of Natural Resources, and Thomas Cole, professor of Psychology at the University of Texas at San Antonio.

Now, a year into the three-year project, the team has conducted some 500 experiments that put subjects in a situation where good things go bad. The random groups, tested here at USU as well as University of Texas at San Antonio, consisted of people with all intelligence types and from all life situations.

Typically, said Freeman, research into this dynamic looks at static situations where “the underlying properties of the system don’t change.” The experiments designed by Freeman’s team begin at this point — subjects relax, cooperation is achieved, and they think they have things figured out. “And then we change the rules of the game on them,” he said.

The experiment is, literally, a game, reminiscent of Pac-Man. Game rules allow students to collect tokens, understanding that they’ll earn money for all tokens collected. Freeman explained, “There is always the temptation to harvest as many tokens as you can as fast as you can.”

But players soon discover that “if they slow their rate of harvest and work together, then over the long run everybody makes more money,” he said.

Subjects relax, think they have things figured out, everybody’s making money. Then something happens to perturb them. There’s a drought, and the flow of water stops. Or, an influx of immigrants threatens to overrun services.

In the game, there are fewer and fewer tokens to harvest. The researchers found that when things were easy, it paid to have people with high general intelligence. “They recognized the change and took advantage of the novel opportunities much, much better than groups that had lower general intelligence,” said Freeman.

But when things went south, “general intelligence was a much weaker predictor of how groups did.” Those with higher social intelligence “did much better at recognizing the change more quickly and renegotiating how they were going to share this resource space,” he said.

“The story is, when things go well, general intelligence is good because it helps you recognize novel opportunities. When things go bad, the social intelligence is much more important because interpersonal conflicts become more stark.”

Freeman sees practical uses for these findings outside of a laboratory. Study results can apply to an array of different fields. “If we could come up with some sort of algorithm or rule of thumb,” he said, it could be used in military, business or education efforts.
SLEEPING ON THE POUNDS:
Sociologist’s $2.1M NIH grant to find links between sleep and weight gain

The important research on sleep’s influences on obesity, led by Eric Reither, Sociology professor, is funded by the National Institutes of Health. A Utah State University demographer has received a $2.1 million grant for a subject that may seem straightforward: Are you more likely to gain weight if you’re a poor sleeper? Straightforward, that is, until you read the grant’s actual title: “Long-term trajectories of subjectively – and polysomnographically – assessed sleep patterns as predictors of neuroendocrine dysfunction and weight gain in adults.”

Perhaps surprisingly, there’s been little research on the link between long-term sleeplessness and obesity, said Eric Reither, the grant’s primary investigator and a professor of sociology in the College of Humanities and Social Sciences.

The National Institutes of Health is funding the four-year-long grant, because of the research’s potential to change public health recommendations on sleep in adulthood. If research shows “that long-term sleep deprivation leads to weight gain and higher odds of obesity, then it will provide people with another tool to help manage weight,” said Reither.

In Utah alone, adult obesity rates have jumped from 9 percent in 1990 to 25 percent in 2015. Clearly, current curtailment efforts aren’t working.

“For part of the motivation for the study is that successful weight management is more complicated than just telling people, ‘Exercise and watch what you eat,’” he said. “That hasn’t been a very successful approach.”

Because of the NIH’s reputation and influence, its research grants are highly competitive. According to Reither, the NIH seeks to fund the most innovative and scientifically rigorous research across a wide range of health issues. Its goal, he added, is research that has “the potential to make a real difference in terms of both the quantity and quality of life for U.S. citizens.”

Among children and adolescents, the evidence for a link between sleep and obesity is well established. But for adults, several short-term studies have provided conflicting results. Reither seeks to pin down the long-term effects. “There are unanswered questions about how sleep impacts weight gain among adults in midlife and later life,” said Reither.

While most sleep studies focus on duration, Reither will also look at the more elusive issue of sleep quality. “There’s data indicating that sleep in the United States has deteriorated over the past few decades,” he said. “That might just be a coincidence with the obesity epidemic, but it suggests there could be some links between those things.”

Reither and his co-investigators have access to an unusual and remarkable database that provides a stable, long-term perspective: the Wisconsin Sleep Cohort Study (WSCS). In 1988, researchers selected a random sample of 1,500 Wisconsin state employees and have followed them ever since. Now, 30 years later, this population of public employees has hit retirement age. The result is a “large, population-based sample with unparalleled measures of sleep duration and quality,” said Reither. “We also have quite a bit of statistical power, which gives us the ability to detect associations between sleep patterns and weight gain over time.”

Reither is working with a team of scholars at the University of Wisconsin-Madison who are associated with the WSCS. Reither is also collaborating with researchers and lab technicians at Stanford University who will retest the frozen blood samples of WSCS participants to identify hormones that were not included in earlier testing. This information is important because, he said, appetite-regulating hormones may provide a crucial link between sleep and weight gain.

For example, ghrelin – a hormone produced in the stomach that alerts the brain when you’re hungry – tends to increase in response to sleep deprivation. In addition to ghrelin, Reither’s team will study half a dozen other hormones that may link sleep problems to adult obesity.

If such scientific research and major funding from the nation’s primary biomedical and public health agency seem a misfit in the world of humanities, Dean Joseph Ward of the College of Humanities and Social Sciences said the social sciences are vital to deciphering data to help actual humans. The grant, he said, “highlights the significant contribution that social scientists can make to promoting health and wellness research.”

Reither estimates that gathering and organizing these biological data will consume about two years of the four-year grant. Once the new, raw data is collected and added to WSCS databases, Reither will use his skills as a statistician and epidemiologist — an individual who researches the causes of diseases.
The grail, he adds, is determining whether “sleep habits have clear connections to weight gain over long periods of the adult life course.” If such a link is established, the public health implications would be significant. “It should help us better understand the U.S. obesity epidemic,” he said, “and what part of that is attributable to sleep.”