

BIKE-SHARE PROGRAM

By Chelsea Evers

Studio offers students real-world design experience

This year, more than 34,700 students will take classes at Iowa State—an enrollment record. With higher enrollment, though, comes more on-campus traffic, further complicating an issue of overpopulated streets, sidewalks and parking lots.

But thanks to an innovative project spearheaded by the College of Design's industrial design program, students may soon help alleviate that issue by taking part in a sustainable new program: a campus-wide bike-share system.

Graduate student Mark Kargol (BArch 2000 Architecture / BFA 2000 Craft Design) of Ames said the idea for a bike-share program came together through a university-wide effort. Now the owner of Ventus Custom Cycles, Kargol hand-builds bikes and works as a teaching assistant in the industrial design department.

Kargol was in the early stages of planning a bicycle design studio with department chair David Ringholz when he discovered the Government of the Student Body was considering funding a bike-share program on the ISU campus.

"As soon as we heard about it, we got in touch with the GSB president to discuss the process," Kargol said. "We asked if they'd let the industrial design department do the design work on the project."

After conversations with the GSB cabinet and Tom Hill, vice president of the Division of Student Affairs, he said, the project was theirs. Together, GSB and Student Affairs pledged the \$15,000 necessary to fund a studio course.

"They were really supportive of the idea," said Kargol, who taught the inaugural class with assistant professor Erdem Selek. "It's a great opportunity for our students to take on a real-world project."



Top: Students in the industrial design junior studio presented three bicycle prototypes to the Government of the Student Body in May. Above: Team Cycle's concept featured a steel frame, leather seat and handle grips, and a chain guard and back rack made of black locust wood. Photos courtesy of Mark Kargol.

Ringholz agreed. "We're already pretty entrepreneurial, and we like grand challenges that give our students the opportunity to design for positive impact in their community. The bike-share studio offers exactly that," he said.

Bicycle brainstorming

The project began with a conceptual studio class in spring 2014. With support from mentors at Quality Bicycle Parts, a Minnesota-based wholesale cycling distributor, and SRAM, a Chicago bike component manufacturer, students designed and built full-scale models to present at the end of the semester.

"My students examined Chicago, New York, and Paris bike-share systems to see what process they use to check out bikes," Kargol said. "They found that most cities' programs force users into quite a lengthy process, involving punching in information, reading a waiver and creating

a PIN number, a process they found to be a deterrent to participating."

The students came up with faster ways to check out bikes, including using the RFID chip technology already present in student and faculty ISU cards.

"Ideally, the plan is to tap a card, keychain, or bracelet on the bike or docking station and it will unlock," Kargol said.

Other features under consideration include a front or back basket for backpacks and gear, integrated lighting systems and a square seat tube, which would prevent bike seats from pivoting during height adjustments. Students also generated ideas for a smartphone app, which would allow users to check the number of bikes available at a desired station, view distances between stations and track user rides.

"One of the proposed apps had a fun feature that would turn the share into a game," Kargol said. "It would track distances on a leaderboard so students could make a game of who rode the most miles."

Sustainable transit

In May, students presented their bike-share ideas in groups. Another class this fall will choose one concept for further development, and students will design a working model of the bicycle and docking system. The project will expand to involve the efforts of several other departments, including mechanical, electric, computer and industrial engineering, community and regional planning and landscape architecture.

"This semester, several departments will delve into a full comprehensive transit study of campus," said Kargol, who is teaching the fall bicycle design studio with project adviser and University Professor Steve Herrstadt. "They need to look at car, bus, bike and pedestrian traffic and work to improve bike access on campus."

Kargol said that while CyRide is an important resource for students, it's time to look at other options.

"Right now, the CyRide garages are completely full," he said. "They aren't able to add more routes, even though we have a growing student population. We can't add more parking to campus, so we're kind of maxed out in terms of vehicle transportation."

"The bus system is fantastic, but it's a little limited in terms of volume," Ringholz concurred. "Within the next five years, it'll be even more challenging than it is now. We have to be ahead of the curve."

Ringholz said the bike-share program, slated for implementation in the next three to five years, should help alleviate issues with transportation.

Road to completion

Beau Easley, junior in industrial design from West Des Moines, said that while the bike-share program is off to a fantastic start, the system is far from production.



Team Cycle's idea for a smartphone app to check bike availability.

"Once a bike design is chosen, everything needs to be refined," he said. "We need to talk logistics: how many bikes we need, how many stations we need and where they'll be located. There's a lot of research left to be done."

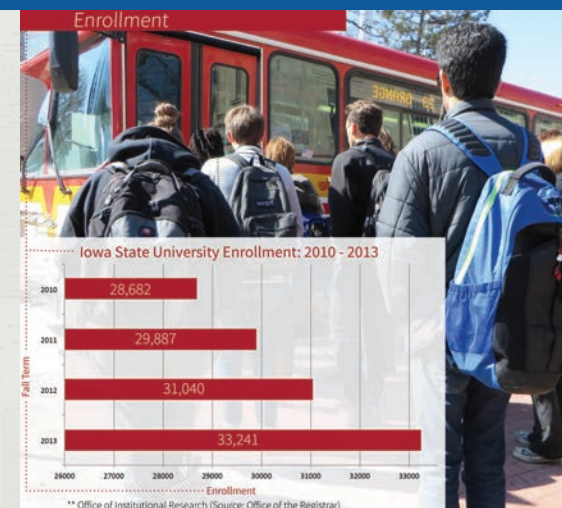
But Easley isn't worried about the pressure this puts on classmates. "This is what industrial designers do: We're almost never familiar with the problem presented to us," he said. "It's our job to work with other professionals to make changes and design a system to solve an issue."

"Certainly, the university could have paid a firm outside of the school to do this project," Ringholz said. "But this program supports the learning objective of the industrial design curriculum. We can do this project in support of both the curriculum and the community."

Easley said he's grateful to the university for giving him and his classmates the opportunity to work on a project of this caliber.

"They could have hired it out, but they trusted us because we know Iowa State inside and out," he said. "We are the group who will be using the bikes, and we can really represent student needs through this system."

Easley said he's also enthusiastic about shaping the future of bike-share programs. "If we do this well, it's something that could be implemented in other schools and communities," he said. "We could set a precedent, and that's exciting."



Research from team CyShare's presentation on Iowa State's growing student population.



Students examined Chicago's bike-share system on a field trip in March. Photo courtesy of Benjamin Pedrick.



Team Cycle builds a trial frame in the Armory shop. Photo courtesy of Team Cycle.

Team 58 would make it easy to check out bikes by using the technology already present in ISU cards. Photo courtesy of Team 58.