Minor in Human Systems Integration

Are you interested in how people interact with technology? Would you like to apply your interest to the design of better products, from mobile devices to video games? If so, the Minor in Human Systems Integration (HSI) might be for you!

About the Minor in Human Systems Integration
HSI is a rapidly growing field with many career opportunities in technology (Google, Apple), medicine and healthcare (e.g., Kaiser), and government (e.g., NASA, US Military, NHTSA, FAA).

HSI involves the analysis, design, and assessment of human interactions with complex sociotechnical systems and products (e.g., aircraft, spacecraft, mobile devices, web sites). HSI professionals study the capabilities and limitations of people using these complex systems and then apply this knowledge to develop human-centered systems and products that optimize human capabilities; increase system efficiency, reliability, usability, and safety; and minimize error. HSI research and application can save lives and money as well as reduce stress, frustration, accidents, and injuries.

This minor introduces students to an interdisciplinary science and practice that will help them work in cross-functional teams. Declaring this minor will show employers and graduate programs that you have completed initial training in the field. This should provide you with a competitive advantage given that this is an uncommon focus at the undergraduate level.

Examples of possible career pathways in HSI
May require additional education/training/experience
- Aviation safety
- Cybersecurity
- Human-computer interaction
- Management of HSI
- Industrial design
- Industrial and systems engineering
- Product design
- User experience
- Usability testing
- Video game design

Cockpit of the Space Shuttle mission simulator, Johnson Space Center Mission Simulation and Training Facility

Curriculum
The core minor topics include general psychology, human cognition, basic statistics, and an introduction to human factors. The electives will allow you to tailor the minor to your academic and career interests. The minor requires 21-24 units, depending on the chosen electives. At least 12 of these units must be separate and distinct from the units used for your major program. Six of the units count toward lower-division GE credit (PSYC 001 and STAT 095 – or equivalent).
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Required courses
Course #  Program of Study
PSYC 001  General Psychology
STAT 095  Elementary Statistics
            (or equivalent GE Area B4 class or BUS2 090)
PSYC 173  Human Factors

Any two of the following:
PSYC 135  Cognition
PSYC 155  Human Learning
PSYC 158  Perception

Electives (choose at least two)
Aviation Human Factors
AVIA 002  Introduction to Aviation
AVIA 073  Air Traffic Control
BIOL 141  Human Factors in the Aviation Environment

Business/Management and Information Systems
BUS2 130  Introduction to Marketing
BUS4 091L  Computer Tools for Business
BUS4 092  Introduction to Business Programming
BUS4 111  Networking and Data Communications

Human Computer Interaction
ART/CS 108  Introduction to Game Studies
CS 046A  Introduction to Programming
CS 046B  Introduction to Data Structures
ISE 164  Computer and Human Interaction

Industrial Human Factors
DSID 121  Industrial Design Process
ISE 114  Safety Engineering
PSYC 170  Industrial and Organizational Psychology

Quantitative Methods
STAT 115  Intermediate Statistics

Suggested Degree Roadmap
First Semester in the Minor
PSYC 001
STAT 095 (or equivalent)

Second Semester in the Minor
PSYC 135/155/158
PSYC 135/155/158

Third Semester in the Minor
PSYC 173
Elective 1

Fourth Semester in the Minor
Elective 2
Elective 3 (if necessary)

Student Organizations
Psi Chi Psychology Honor Society
http://studentorgs.sjsu.edu/psichi/

SJUS User Experience Association (SJUS UXA)
http://www.uxasjsu.org

Human Factors and Ergonomics Society Student Chapter
http://www.sjsuhfes.com

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Affiliated Laboratories
Vision Laboratory
http://www.sjsu.edu/people/cary.feria/visionlab/visionlab.htm
Principal Investigator: Cary Feria, PhD
Topics: Visual perception, Multiple object tracking

VECTR Lab
http://www.vectrlab.net
Principal Investigator: David Schuster, PhD
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Topics: Human-robot interaction, Cybersecurity, Video games and human performance