

Design and Construction of a Rube Goldberg Clock
(Technical Report)

Outreach or Out of Reach?
How the University of Virginia Sees Its Students
(STS Research Paper)

An Undergraduate Thesis Portfolio
Presented to the Faculty of the
School of Engineering and Applied Science
In Partial Fulfillment of the Requirements for the Degree
Bachelor of Science in Mechanical Engineering

by

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date submitted, in May 11, 2023

Preface

How can the mental health of college students be improved? Besides better provision of mental healthcare services, colleges and universities can also modify curricula and assignments in ways that promote engagement, interest, and creativity.

The technical design project combines mechanical design, electrical engineering, and microcontroller programming to develop skills in computer-aided design (CAD), rapid prototyping with laser cutting and 3D printing, and project management. The project team designed and constructed a clock incorporating whimsical components like those associated with Rube Goldberg machines. In the design, moving pinballs and other mechanisms keep the system running.

How do administrators and faculty at the University of Virginia (UVA) monitor and address the mental health needs of the student population? Mental health is essential to personal wellbeing. On U.S. college campuses, incidence of reported mental health conditions and demand for mental health services have been rising. Like most other large universities, the University of Virginia (UVA) offers a diverse range of mental healthcare services. The programs are based upon well-established research findings and are accessible to most students. Political pressures and divergent perceptions of students' mental healthcare needs limit the resources available for mental health.