The University of Utah

- Established 1850
- By 1852, 80 students enrolled, but funding was rescinded
- Classes re-established in 1869, under Dr. John R. Park, Chancellor
- Classrooms completed by 1884
School of Mines of the State of Utah

• Established by the state constitution
School of Mines of the State of Utah

• Instruction began in 1891
• B.S. degree offered in 1895-6
• Utah State School of Mines organized, 1901
Safety Education in the Mining Engineering Program
U.S. Mining Fatalities
Crandall Canyon, 2007: Pillar Burst
Crandall Canyon, 2007: Nine Fatalities
Western Mining Presidential Chair in Mine Safety
Support for the Endowment

- 12 corporate donors
- 9 individual donors
Professor Tom Hethmon

- Industrial hygiene
- Safety management systems
- Organizational behavior
- Management improvement
- Safety training and education
- Executive positions with Phelps Dodge, Rinker NA, and DynoNobel NA
Safety Education in the Curriculum

- Humanities
- Health
- Biology
- Economics
- Sociology
- Calculus
- Literature
- Grammar
- Anatomy
- Physics
- World History
- English
- Psychology

Mine Health and Safety Management

- Effective Health and Safety Management Systems
- Building a Health and Safety Culture
- Safety and Health Hazard Anticipation, Identification, Evaluation, and Control

Edited by Michael Karmis

The University of Utah
Utah Curriculum Guidelines

• B.S. degree should be 122 credits
• One credit includes
• 16 weeks of instruction
• One hour of classroom hours or four lab hours per week
• Three hours of outside work per week
## Mining Engineering Curriculum (2009)

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science and Mathematics</td>
<td>35.0</td>
</tr>
<tr>
<td>Mining Engineering</td>
<td>44.0</td>
</tr>
<tr>
<td>General Education</td>
<td>27.0</td>
</tr>
<tr>
<td>Geology</td>
<td>14.0</td>
</tr>
<tr>
<td>Engineering Science</td>
<td>12.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>132.5</strong></td>
</tr>
</tbody>
</table>
Development of Formal Safety Courses

• Health & Safety Management in Mining (August 2011)
• Risk Management & Management Systems (January 2012)
Health & Safety Management in Mining

• Understand risk management: hazard identification and risk management
Health & Safety Management in Mining

• Understand risk management: hazard identification and risk management
• Understand management systems for safety and health
Health & Safety Management in Mining

• Understand risk management: hazard identification and risk management
• Understand management systems for safety and health
• Understand U.S. regulatory scheme, its application and enforcement
Health & Safety Management in Mining

• Understand risk management: hazard identification and risk management
• Understand management systems for safety and health
• Understand U.S. regulatory scheme, its application and enforcement
• Understand how behavior and human factors to affect safety performance
Health & Safety Management in Mining

- Understand risk management: hazard identification and risk management
- Understand management systems for safety and health
- Understand U.S. regulatory scheme, its application and enforcement
- Understand how behavior and human factors to affect safety performance
- Be familiar with Whole Systems Design
Health & Safety Management in Mining

• Understand risk management: hazard identification and risk management
• Understand management systems for safety and health
• Understand U.S. regulatory scheme, its application and enforcement
• Understand how behavior and human factors to affect safety performance
• Be familiar with Whole Systems Design
• Understand the mining engineer’s role in safety and health management
Risk Management & Management Systems

• Understand formal and informal risk management tools
Risk Management & Management Systems

• Understand formal and informal risk management tools
• Apply risk management to mining engineering
Risk Management & Management Systems

• Understand formal and informal risk management tools
• Apply risk management to mining engineering
• Apply risk management to safety and health management
Risk Management & Management Systems

• Understand formal and informal risk management tools
• Apply risk management to mining engineering
• Apply risk management to safety and health management
• Understand the role of risk management in protecting whole organizations
Risk Management & Management Systems

• Understand formal and informal risk management tools
• Apply risk management to mining engineering
• Apply risk management to safety and health management
• Understand the role of risk management in protecting whole organizations
• Understand the role of management systems in safety and health management
Risk Management & Management Systems

- Understand formal and informal risk management tools
- Apply risk management to mining engineering
- Apply risk management to safety and health management
- Understand the role of risk management in protecting whole organizations
- Understand the role of management systems in safety and health management
- Understand the role of risk management in safety and health management systems
• Courses offered simultaneously at the graduate and graduate levels
• Courses offered simultaneously at the graduate and graduate levels
• Neither course includes detailed discussion of regulations and standards, or enforcement and compliance
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• Neither course includes detailed discussion of regulations and standards, or enforcement and compliance
• Courses emphasize systems management, human behavior, and leadership
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Courses completed by 15 graduate and 13 undergraduate students to date
• Courses offered simultaneously at the graduate and graduate levels
• Neither course includes detailed discussion of regulations and standards, or enforcement and compliance
• Courses emphasize systems management, human behavior, and leadership
• Courses completed by 15 graduate and 13 undergraduate students to date
• Several students have enrolled specifically because of these courses
## Mining Engineering Curriculum (2013)

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science and Mathematics</td>
<td>30.0</td>
</tr>
<tr>
<td>Mining Engineering</td>
<td>50.0</td>
</tr>
<tr>
<td>General Education</td>
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<tr>
<td>Geology</td>
<td>9.0</td>
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<tr>
<td>Engineering Science</td>
<td>12.5</td>
</tr>
<tr>
<td>Total</td>
<td>125.5</td>
</tr>
</tbody>
</table>
Student Reactions

Increased awareness of the importance of safety

• Students present a “safety share” at the weekly departmental seminar
• Employers interviewing students note student interest in their companies’ safety systems and values
Student Reactions

Student comments
• “These courses provide a new way of thinking about management and people in the workplace.”
• “This isn’t the usual stuff where we calculate the right answer and go on to the next problem.”
Center for Mining Safety & Health Excellence established by the Board of Regents, April 2012
ADVISORY BOARD

SERVICES

- Pro Bono
- Consultation
- Commercial

FUNCTION

- Advocacy and Service
- Education and Training
- Research and Development

ADVISORY

Regular Faculty
- Director
- Adjunct Faculty
Independence Pass, Colorado (3,687 m)