## **ASSESSING STUDENT PERFORMANCE AND INTEREST** FROM THE START OF THE COVID-19 PANDEMIC TO PRESENT USING ENGAGEMENT, ATTENDANCE, AND **GRADES AS INDICATORS**

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## PRELIMINARY FINDINGS: EFFECTIVE TOPICS

Preliminary data analysis involving several introductory geology courses, mostly tied with general education curriculum, indicated that when comparing interest and engagement between different geological topics being taught, there was no clear winner.

However, topics that drew the most attention tended to be any that contained sub-topics that were controversial or exciting. For example: volcanoes (destructive capability and evacuation measures), earthquakes (similar magnitude with variable destruction), fluvial processes (frequency of megaflood and impact on urban areas) and groundwater (contamination due to over pumping).

Topics that did not yield positive outcomes, or generate enough curiosity, were those typically less sensational by their nature (mineral chemistry, identification of minerals and rocks, taxonomy, mapping exercises, etc.).

### **POINTS OF INTEREST: CURRENT EVENTS**

Interestingly, a scarcity of rare earth rich minerals drew attention, as the dwindling resource potential may cripple manufacturing of electronics and communication devices. Students seemed to be thoroughly engaged to participate in topics that connected with a broader spectrum of socioeconomic consequences. In a way, it demonstrated the significance of applied geology as a cornerstone as part of geoscience knowledge gathering. Being in urban setting, where many students are commuting or non-traditional type, dissemination of content knowledge required incorporation of current events such as extreme weather-related megafloods, forest fires, landslides, hurricanes, coastal surges etc.

### **DECLINING GRADES & RECOMMENDATIONS**

Assessing interest poses a challenge because of multiple variables and interconnectedness. Students tended to spend less time in class on Fridays, but more time during the last topic before an examination in anticipation of a review. Grades have been mixed, but are generally lower between Spring 2020 and Spring 2022 semesters for the same class covering the same topics, in the same order. Overall learning comprehension appears to have decreased.

It is recommended to practitioners for devising pedagogically-sound lessons on any geology/environmental science-related topic to include using as many recent, realworld incident examples as possible and especially relying on controversial, debatable, and sensational sub-topics (within reason).

	<b>100</b> %	
	<b>90</b> %	
<mark>A, 38</mark>	<b>80</b> %	
	<b>70</b> %	
	<b>60</b> %	
	<b>50</b> %	
B, 42	<b>40</b> %	
	<b>30</b> %	
	<b>20</b> %	
<b>C, 15</b>	<b>10</b> %	
	0%	
Spring 2		

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Attendanc						
94%						
71%						
68%						



## **UPDATED FINDINGS, FALL 2022**

Regarding grades, the fall 2022 data is significantly different from the average of the three previously recorded semesters (see updated Graph 1 left).

Spring 2020, Fall 2021 and Spring 2022 grades were fairly constant. If "A's" and "B's" are combined to form a group of top performers, then the average "A+B" group is about 78% with the bottom performers making up about 22% (see Table 2 below).

	Spring 2020	Fall 2021	Spring 2022	Average	Fall 2022
Top Performers	81%	76%	78%	78%	89%
<b>Bottom Performers</b>	19%	24%	22%	22%	11%

**Table 2:** Grade distribution showing changes in
 pervious semester average versus Fall 2022.

In Fall 2022, half of the bottom performers were converted to top performers in large part through educator and support staff intervention.

## **NSTRUCTOR INTERVENTION**

1) Followed up with several students throughout the semester by email and phone, providing numerous reminders on submission deadlines or missing work.

2) Provided numerous extensions on quiz deadlines, as well as multiple attempts for quizzes.

3) Provided encouragement throughout the semester to boost class morale. Many students stated they had given up on completing the class with a good grade once they were behind. Encouragement helped.

**STAFF INTERVENTION** 

York College has multiple departments that support students. Students were directed to: 1) Student Development, 2) Counseling Center, 3) Hardship funding) and 4) Food Pantry.

Student Development reached out to each professor for every student with document hardships to advocate for extensions, makeups, and other leniency to assist passing. Authors will explore in future studies.



Above: Volcanic eruptions cause great harm to humans, resulting in an estimated 250,000 deaths over the past two millennia [Stephen Marshak]









Placing buildings on rollers or shock

absorbers lessens the severity of



Above: Volcanic Hazards: Threat from Lava Flows [USGS; Vittoriano Rastelli/Getty Images]

People watching a lava flow advance











**Above**: The natural hydraulic gradient can be reversed by groundwater withdrawal. A large irrigation well creates a large cone of depression that reverses the hydraulic gradient and causes septic contamination of the home well.

Above: Shearing can cause building and roadway foundations to fail. [AP Photo; Pacific Press Service/Alamy]



Thrusting

can also

supports.

crush

bridge

## nationalgrid

# conEdison, inc. College GRADUATE





Survey; Reuters/Newscom]







**UNICEF/UN0698138/** Hussain/AFP: On 26 August 2022, a man (L) and a youth (R) use a satellite dish to move children across a flooded area after heavy monsoon rainfalls in Jaffarabad District, Balochistan Province, Pakistan

YORK

Noah Berger / AP:

Firefighter Davis Sommer lights a backfire to burn off vegetation while battling the Mosquito Fire in the Volcanoville community of El Dorado County, Calif., on Sept. 9, 2022.

National Oceanic and Atmospheric Administration NOAA:

Hurricane Sally, seen here by GOES EAST on September, 14, 2020.



## **CITED LITERATURE**

Marshak, S. (2022). Essentials of Geology (7th ed.). W.W. Norton & Company.

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## ABSTRACT

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