

How has COVID19 changed university science? The negative and positive impacts

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COVID19 has affected most areas of life in the United States and around the world. Universities were some of the first organizations to shut down - sending faculty, employees, and students home to work remotely. [SciOPS](#) surveyed 362 biologists, biochemists, and civil and environmental engineers at universities across the U.S. about the positive and negative impacts of COVID19.

Table 1 shows the proportion of respondents that indicated **major negative impacts**, for all respondents and by academic field. Overall, scientists responded that the most common major negative impacts are lab work disruptions (75%) followed by disruptions due to slow down or university closure (60%) and disruptions in student employment (44%). The table also shows **major negative impacts** by field of science. More than half (53%) of biochemists report major negative impacts due to collaboration disruptions. The third most common major impact reported by engineers (44%) is fieldwork disruptions.

Scientist reports of major negative impacts from COVID19 differ by field

Table 1. Major negative impacts on academic science from COVID19 and related policies

Major Negative Impacts	All	Biology	Biochem	Engineers	Sig.
Lab work disruptions	75%	76%	72%	58%	0.001
Disruptions due to slow down or university closure	60%	67%	82%	54%	
Disruptions in student employment	44%	47%	44%	38%	
Grant disruptions	36%	32%	28%	31%	
Collaboration disruptions	35%	41%	53%	32%	0.059
Publishing and other dissemination disruptions	31%	25%	19%	18%	
Loss of data	28%	27%	16%	15%	
Field work disruptions	28%	27%	10%	44%	
Disruptions related to administrative or staff employment	19%	19%	21%	19%	
Loss of biological specimens or animals	12%	13%	0%	1%	0.001
	N=361	N=251	N=33	N=78	

The last column in Table 1 notes statistically significant differences in major negative impacts for biologists, biochemists and engineers on three items: lab work, collaboration, and loss of specimens. Only 58% of the engineers, compared to two-thirds of biologists and biochemists, report major lab work disruptions. Not

surprising, a higher proportion of biologists (13%) report major negative impacts due to loss of biological specimens or animals, as compared to biochemists (0%) and engineers (1%).

Scientists were asked about the **major positive impacts** of COVID19 and related policies. **Table 2** shows the proportion of scientists that identified each item as a major positive impact, and responses by field of science. Overall the two most common reported major positive impacts are new research topics being explored (10%) and new grant funding opportunities (8%). Respondents in biochemistry and biology primarily drive these reports. Engineers report new grant funding (5%) and new collaborations (5%) as their most positive impacts. Biologists and biochemists indicated that the greatest major positive impacts were the development of new research topics (10%) and new grant funding opportunities (8%). The last column in Table 2 shows the significance levels of differences in reported major positive impacts across biologists, biochemists and engineers. **The only significant difference, by field, is in reporting loosening of university rules as a positive impact from COVID19 policies.** Biochemists and Engineers are significantly more likely to report loosening of university rules, as compared to biologists.

Table 2. Major positive impacts on academic science from COVID19 and related policies, by field of science

Major Positive Impacts	All	Bio	Biochem	Engineers	Sig.
New research topics being explored	10%	9%	12%	4%	
New grant funding opportunities identified	8%	4%	12%	5%	
New collaborations developed	5%	4%	9%	5%	
New data sources identified	5%	4%	0%	3%	
Loosening of university rules	2%	1%	3%	3%	0.004
	N=360	N=251	N=33	N=78	

Overall, more scientists report major negative impacts from COVID19 than positive impacts. There are some statistically significant differences in reported negative impacts across academic fields. This may be due to different academic expectations and needed materials for research such as biological specimens that depend on the field of science. The large number of scientists claiming negative impacts suggests that COVID19 has been detrimental to university science, which has implications for the future of the academic enterprise. The large number of disruptions and other negative impacts can make managing science increasingly difficult, while positive impacts are comparatively smaller or less evident.

Scientists' responses imply that COVID19 has been harmful to university science

Learn more about [SciOPS](#) and our survey method [here](#).