CSTAT Survey 2021

CSTAT provides individual statistical support for research projects as well as statistical training opportunities. CSTAT statisticians are engaged in all phases of research projects including study planning, data management, data analysis, and reporting. CSTAT also offers statistical training opportunities through workshops, seminars, and other formats. https://cstat.msu.edu/

We conducted an online survey, September 17 – October 5, 2021, to gather feedback on quantitative needs for research projects or statistical training needs. This was distributed via email through several channels. Of the 346 participants, 47% were faculty and 38% were graduate students. Other participants included postdoctoral researchers, research staff, academic staff, and administrators.

Participation by college (N): CANR (73), CSS (69), CAS (43), CNS (27), COE (20), EGR (10)
Medical colleges: CHM (36), CVM (7), COM (5), CON(5)
BUS (24), Other (15)

Overall summary
- CSTAT statistical support for research projects is desired and appreciated.
- There is a lack of information about CSTAT's services. More MSU scholars are interested in making use of CSTAT.
- Cost is a barrier to utilizing CSTAT, especially for members from non-sponsoring colleges.
- Workshops and statistical training offerings are attractive, and an expansion is desired.

Implications:
- Preferences for statistical areas will inform future educational offerings, staffing development and hiring.
- Expanded funding and continuation of such funding from MSU and ORI is necessary to address researchers' needs, since CSTAT is at capacity.
- Educational offerings cannot be expanded at this time due to limited staffing.
- Communication with sponsors is essential to keep the MSU community informed about CSTAT. The website is frequently updated, but CSTAT emails could be more regular sent out. CSTAT presents at The Graduate School Resource Fair and to specific groups by request.
- CSTAT's Quality Academy continues to meet to address areas for continuous quality improvement, such as professional development of the staff. Staffing for the diversity of statistical expertise requested is challenging.

CSTAT statistical services, attractions, and barriers

Advising on statistical methods, conducting data analysis, and educational offerings were seen as the biggest attractions to using CSTAT a services with over 70% participants selecting these

options, and over 80% participants from the medical colleges (Table 1). Study design, collaborating on grant proposals, and collaborating on manuscripts was considered by approximately 50%. Thus, all CSTAT offerings are valuable to MSU scholars.
Financial constraints are a barrier to utilizing CSTAT in colleges that do not sponsor CSTAT, such as CSS, BUS, and CANR, and thus do not have at least some free access to working with CSTAT statisticians.
Information about CSTAT's events and services is available on CSTAT's website, and is distributed via listerv emails, and emails directly to college contacts. Communication via colleges and departments has been most helpful. The largest proportion of participants who lack of information about CSTAT are from the College of Social Sciences (24%).

Table 1: Attractions and barriers to utilizing CSTAT services (proportion who answered 'strongly agree' or 'agree')[4]

	Sponsors[1] (N=99)	CSS[2] (N=69)	Medical[3] (N=52)	CANR (N=73)	BUS (N=24)	Overall (N=346)
Attractions						
Study design	52.7%	44.8%	65.3%	57.1%	68.2%	55.3%
Advising on statistical methods	78.9%	77.6%	84.0%	86.2%	87.0%	81.7%
Conducting data analysis	64.4%	65.7%	83.3%	76.9%	78.3%	72.0%
Collaborating on grant proposals	51.1%	37.3%	68.6%	45.3%	52.2%	49.4%
Collaborating on manuscripts	50.6%	37.9%	64.6%	46.9%	30.4%	47.6%
Educational offerings	74.7%	77.6%	72.5%	76.9%	87.0%	78.5%
Barriers						
Financial constraints	8.8%	15.2%	9.8%	16.7%	17.4%	11.7%
Ease of access	9.8%	15.2%	14.3%	9.1%	13.0%	13.1%
Lack of information	8.6%	23.9%	13.7%	10.1%	4.3%	13.4%
Lack of expertise	18.7%	22.7%	17.0%	17.2%	17.0%	19.5%
Lack of time	14.1%	29.9%	24.0%	16.7%	26.1%	20.2%

[1] CNS, CAS, COE (staffing agreement), EGR [2] non-sponsor, except for PSY
[3] CVM, CHM, COM (staffing agreement), CON (non-sponsor)

CSTAT offers a mix of 3 hour workshops and 1 hour seminars on various statistical topics to accommodate schedules of MSU scholars. This includes statistical methods and software, data management, responsible conduct of research (incl. reproducibility and data ethics).
Statistical methods the most popular choice selected by 74% participants (Table 2), but it can cover a wide range of topics. There are many types of statistical software, for efficiency we focus on R, SPSS, and STATA, where CSTAT has the most expertise. Due to the interest in data visualization (50%), CSTAT will develop modules on this topic.

Table 2: Statistical training needs

	Sponsors (N=99)	CSS (N=69)	Medical (N=52)	CANR (N=73)	BUS (N=24)	Overall (N=346)
Study design	29.3%	40.6%	38.5%	34.2%	29.2%	34.4%
Sample size calculations	31.3%	50.7%	61.5%	37.0%	12.5%	39.9%
Statistical methods	68.7%	78.3%	73.1%	75.3%	91.7%	74.3%
Data management	33.3%	40.6%	26.9%	42.5%	29.2%	36.1%
Data visualization	49.5%	53.6%	32.7%	60.3%	33.3%	50.0%
Statistical software	34.3%	53.6%	44.2%	49.3%	41.7%	44.5%
Reproducibility	12.1%	21.7%	17.3%	21.9%	17.3%	17.9%

History of CSTAT

1986 – Statistical Consulting Service by the Department of Statistics and Probability, graduate student support, co-directed by Dennis Gilliland and Connie Page

2004 – CSTAT, Established by the MSU Foundation

Directors:

Dennis Gilliland and Connie Page, Statistics, NatSci, 2004-2008

Brian Silver, Political Science, CSS, 2008-2012

Brian Maurer, Fisheries and Wildlife, CANR, 2012-2017

Steven Pierce, CSTAT, 2017-2019

Marianne Huebner, Statistics, NatSci (2019-present)

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