THE
New Mathways
PROJECT

The Charles A. Dana Center
at The University of Texas at Austin

Mathematics for communications:

Recommendations from professional organizations and requirements from Texas institutions of higher education

Brought to you by the New Mathways Project, a collaboration of
The Charles A. Dana Center at The University of Texas at Austin and the Texas Association of Community Colleges

The state of communications education and careers in Texas

Communications is a high-enrollment bachelor's program in Texas. In 2013, 4,374 students completed bachelor's degrees from Texas public universities in communications, journalism, communications technologies, and related programs (Texas Higher Education Coordinating Board, 2014).

The broad-based communications curriculum enables students to gain practical skills easily transferable to many workplaces.

We provide these briefs to inform institutional discussions about the modernization of mathematics course requirements.

Each brief examines what constitutes relevant math for various majors (thus far, nursing, communications, criminal justice, and social work) by examining professional organization recommendations and Texas institutional requirements.

While national labor market trends in communications-related employment are steady or declining, communications degrees offer access to fast-growing job markets in Texas (U.S. Bureau of Labor Statistics, 2014). According to data provided by the Texas Workforce Commission (2010), employment of "media and communications workers" in the state is expected to grow 18 percent from 2010 to 2020, reaching an estimated 58,710 positions by 2020.

Additionally, new technologies and greater access to information are reshaping communications careers. Data increasingly influences publishers and news outlets. Search engine optimization analysts inform organizations about trending subjects, while data journalists produce informative content by visualizing and interpreting statistics (Lorenz, 2012).

Professional associations of mathematics suggest—and NMP participants concur—that institutions of higher education should offer multiple mathematics pathways with relevant and challenging math content aligned to specific programs of study.

What constitutes relevant math for different majors, however, is not always clear. This brief takes a look at this question for communications by examining some recommendations of professional organizations and requirements of Texas institutions.

photo courtesy of South Texas College

Although college algebra remains the most common option available, 93 percent of the Texas communications programs offer contemporary mathematics or statistics.

Students in historically non-mathematics-intensive majors, such as communications, should build quanititative and logical reasoning skills while honing analytical communication skills.

photo courtesy of South Texas College

Recommendations from professional organizations of communications and of mathematics

We reviewed reports and recommendations from professional associations for (variously) journalism, communications, and mathematics—as well as from accrediting organizations and the Texas Higher Education Coordinating Board—to identify the mathematics courses or quantitative learning outcomes recommended for communications majors. Findings include:

- The Accrediting Council on Education in Journalism and Mass Communications (ACEJMC) identifies 12 "professional values and competencies" which undergraduate programs in these subjects should instill in their students. These competencies include quantitative literacy, critical thinking, and research and evaluation skills (ACEJMC, 2012, p. 2)

- The Mathematical Association of America's Committee on the Undergraduate Program in Mathematics recommends that schools educate students enrolled in non-mathematics-intensive majors (such as communications) to think effectively—including quantitatively and logically. The Committee recommends that rather than taking traditional college algebra, such students take generalist courses—including quantitative literacy, liberal arts mathematics, finite mathematics, college algebra with modeling, and introductory statistics—that enable them to build quantitative and logical reasoning skills while honing analytical communication skills (Committee on the Undergraduate Program in Mathematics, 2004, p. 28).

- *Beyond Crossroads* (2006), a report published by the American Mathematical Association of Two-Year Colleges (AMATYC) recommends that all students develop quantitative literacy. For students in historically non-mathematics-intensive majors such as communications, developing quantitative literacy requires that they learn mathematical modeling and how to apply mathematics, statistics, and technology skills to evaluate research, and to analyze and solve real-world problems (p. 40).

Accrediting associations and the Coordinating Board do not make specific recommendations about mathematics coursework for communications majors, suggesting institutions can determine the appropriate quantitative preparation.

- The American Communication Association issues accreditations for communications programs. ACA standards do not include any specific course sequences, which allows for flexibility at the university level (ACA, 2013).

- In contrast to the Texas Higher Education Coordinating Board's approach to other career paths covered in this series of briefs, the Board has not developed a field-of-study curriculum agreement for communications.

Current status of mathematics requirements for communications in Texas

Dana Center NMP staff reviewed the core mathematics requirements for all 4-year public institutions of higher education in Texas and mapped requirements among the 32 programs for a bachelor's of arts in communications.[A]

32 Public Universities in Texas Offer Communications Bachelor's Degrees

2	**Require at least one specific course**	**30**	**Do not require a specific course. Options are available to fulfill core corriculum.**
1	Requires College Algebra (Math 1314)	20	Offer Statistics (Math 1342*) as an option
1	Requires Statistics (Math 1342)	19	Offer Contemporary Math (Math 1332) as an option
		25	Offer College Algebra (Math 1314) as an option

*Math 1342 is the Texas common course number for Elementary Statistical Methods. Math 1342 or its equivalent is the most common statistics course offered, although some institutions offer locally developed statistics courses—often applied courses for particular majors—that are not equivalent to Math 1342.

This table summarizes the range of course options for communications students. Thirty communications programs do not require a specific mathematics course within the major. However, communications majors at these institutions must meet the institution's core curriculum requirement of 3 or 6 hours of mathematics.

Twenty institutions offer statistics (Math 1342), 19 offer contemporary math (Math 1332), and 25 offer college algebra (Math 1314). Although four schools offer only one of these introductory courses, 19 offer two, and 8 offer all three. Only two communications programs require specific mathematics courses.

[A] See the Policy Resources section of the Dana Center website at
http://www.utdanacenter.org/higher-education/higher-education-resources/policy-resources — in particular

NMP Transfer and Applicability FAQ
http://www.utdanacenter.org/higher-education/higher-education-resources/nmp-transfer-and-applicability-faq

The Mathematics Pathways Transfer Resource
http://www.utdanacenter.org/wp-content/uploads/TX_Mathematics_Pathways_Transfer_September_2013.pdf

Conclusion

Very few communications programs in Texas public institutions of higher education require specific mathematical coursework as part of the degree program. Offerings at the 30 institutions without specified mathematics courses for communications are trending toward alignment with recommendations from ACEJMC, the MAA Committee on the Undergraduate Program in Mathematics, and AMATYC.

Although college algebra remains the most common option available, 93 percent of the Texas communications programs offer contemporary mathematics or statistics. Our research suggests these courses are better aligned to the needs of students in non-mathematics-intensive majors, as the curriculum of these courses focuses on quantitative reasoning and literacy—skills directly applicable to communications coursework and careers.

References

Accrediting Council on Education in Journalism and Mass Communications (ACEJMC). (2012). *A Guide to Assessment of Learning Outcomes for ACEJMC Accreditation*, p. 2. Retrieved February 17, 2014, from http://www2.ku.edu/~acejmc/2012%20Assessment%20Guide.pdf

American Communication Association. (2013 September 29). *ACA Accreditation Service: Criteria and Procedures Manual.* Retrieved February 17, 2014, from http://www.ac-journal.org/americancomm/accreditation/AccreditationFiles/Docs/ACA Accreditation Service 2013.pdf

American Mathematical Association of Two-Year Colleges. (2006 November). *Beyond crossroads: Implementing mathematics standards in the first two years of college.* Memphis, TN: Author. Retrieved February 17, 2014, from http://beyondcrossroads.matyc.org/doc/PDFs/BCAll.pdf

Committee on the Undergraduate Program in Mathematics of The Mathematical Association of America. (2004). *Undergraduate Programs and Courses in the Mathematical Sciences: CUPM Curriculum Guide 2004*, p. 28. Retrieved February 17, 2014, from http://www.maa.org/sites/default/files/pdf/CUPM/cupm2004.pdf

Lorenz, M. (2012). "Why Journalists Should Use Data." Introduction in Gray, J., Bounegru, L., & Chambers, L., editors. *The Data Journalism Handbook.* Cambridge: Open Knowledge Foundation. Retrieved May 6, 2014, from http://datajournalismhandbook.org/1.0/en

Texas Higher Education Coordinating Board. (2014). *Degrees Awarded by Award Level / Curriculum Area 2012–2013* [Database]. Retrieved from http://reports.thecb.state.tx.us/approot/dwprodrpt/gradmenu.htm. This figure excludes animation and speech sciences programs classified under communications.

Texas Workforce Commission. (2010). *Texas Long-Term Occupation Projections* (for 2010–2020). [Excel spreadsheet.] Retrieved February 17, 2014, via http://www.tracer2.com/publication.asp?PUBLICATIONID=826

U.S. Bureau of Labor Statistics. (2014). *Media and Communications: Occupational Outlook Handbook.* Retrieved February 17, 2014, from http://www.bls.gov/ooh/media-and-communication.htm

photo courtesy of South Texas College

About this resource

Authors:

Jenna Cullinane, *Ph.D, Higher Education Policy and Strategy Lead*

Shelby Carvalho, *Graduate Research Assistant*

Jesse Tow, *Graduate Research Assistant*

In this series of briefs, we provide information on four course programs chosen both for their popularity and for the level of need in Texas:

- Nursing
- Criminal Justice
- Social Work
- Communications

About the Dana Center

The Dana Center develops and scales math and science education innovations to support educators, administrators, and policy makers in creating seamless transitions throughout the K–14 system for all students, especially those who have historically been underserved.

We focus in particular on strategies for improving student engagement, motivation, persistence, and achievement.

The Center was founded in 1991 at The University of Texas at Austin. Our staff members have expertise in leadership, literacy, research, program evaluation, mathematics and science education, policy and systemic reform, and services to high-need populations.

For more information

- about the New Mathways Project, see **www.utdanacenter.org/mathways**

- about the Texas Association of Community Colleges, see **www.tacc.org**