



Dana Center
Mathematics
PATHWAYS



The University of Texas at Austin
Charles A. Dana Center

Program-of-study brief number 3

Mathematics for criminal justice:

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 criminal justice education and careers in Texas

In Texas, homeland security, law enforcement, firefighting, and related protective services are high-demand fields that recruit students with bachelor's degrees in criminal justice.

In 2012, 3,365 students statewide graduated with a bachelor's degree in criminal justice, specializing in law enforcement administration, safety studies, or police science. The number of criminal justice graduates in Texas increased 44 percent between 2007 and 2012 (Texas Higher Education Coordinating Board, 2014).

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, elementary teacher education, and business) by examining professional organization recommendations and institutional requirements.



*Mathematics requirements for
criminal justice programs in Texas
vary considerably.*

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Thirty Texas institutions of higher education offer bachelor's programs in criminal justice or criminology. Among the 30 schools, 9 offer bachelor's of arts programs, 21 offer bachelor's of science programs, 2 offer bachelor's of applied arts and sciences programs, 3 offer bachelor's of science in criminology, and 2 offer bachelor's of arts in criminology (some institutions offer more than one type of program).

Professional associations of mathematics suggest—and the Dana Center Mathematics Pathways (DCMP) 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 various majors, however, is not always clear. This brief takes a look at this question for criminal justice by examining some recommendations of professional organizations and requirements of Texas institutions.

The Academy of Criminal Justice Sciences specifically recommends statistics as a core quantitative skill for students of Criminal Justice.

Recommendations from professional organizations of criminal justice and mathematics

We reviewed reports and recommendations from accrediting organizations, professional associations of criminal justice and of mathematics, and the Texas Higher Education Coordinating Board to identify the mathematics courses or quantitative learning outcomes recommended for criminal justice–related majors. Findings include:

- The Academy of Criminal Justice Sciences states that the “primary objectives of all criminal justice programs include the development of critical thinking; communication, technology and computing skills; quantitative reasoning; ethical decision-making; and an understanding of diversity” (ACJS, 2005, p. 10).
- ACJS recommends that students in Criminal Justice degree programs focus on building quantitative skills important for conducting and analyzing criminal justice research. ACJS specifically recommends statistics as a core quantitative skill for students of Criminal Justice (ACJS, 2005, p. 9).
- The Mathematical Association of America asserts that students in social science majors require “a strong foundation in mathematical literacy—particularly in the area of statistics” in order to succeed in a data-driven career field (Johnson and Grant, 2011, p. 34).
- The Texas Higher Education Coordinating Board field-of-study curricula agreement recommends 3 hours of core math for bachelor’s degrees in criminal justice but does not designate a specific mathematics course (THECB, n. d., table).



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Current status of mathematics requirements for criminal justice-related programs in Texas

DCMP staff reviewed the core mathematics requirements for all 4-year public institutions of higher education in Texas and mapped the requirements of the 30 criminal justice bachelor's degree programs.

The table below shows that 13 institutions require or strongly recommend particular mathematics courses. We include courses required by default because there are few options within institutions' core curriculums. Statistics is the most common requirement; seven institutions require either Math 1342 or a locally developed elementary statistics course for social science majors.

Two programs require only contemporary math (Math 1332), two require only college algebra (Math 1314), and three require both statistics and college algebra. Five of the six institutions that require statistics also require an additional three hours of mathematics, but do not designate a specific course.

Many other (17) bachelor's degree programs in criminal justice/criminology do not require a specific mathematics course. Of these, 7 offer statistics, 11 offer contemporary math, and 15 offer college algebra as options. Eight colleges also offer mathematics for business and economics (Math 1324) as an option for criminal justice majors.

30 Public Universities in Texas Offer Criminal Justice Bachelor's Degrees

13	Require at least one specific course	17	Do not require a specific course. Options are available to fulfill core curriculum.
6	Require Statistics (Math 1342*) only	7	Offer Statistics (Math 1342*) as an option
2	Require College Algebra (Math 1314) only	11	Offer Contemporary Math (Math 1332) as an option
3	Require College Algebra (Math 1314) & Statistics (Math 1342*)	15	Offer College Algebra (Math 1314) as an option
2	Require Contemporary Math (Math 1332) only	8	Offer Math for Business/Econ. (Math 1324) 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.

^A See the Resources section of the Dana Center Mathematics Pathways Resource Site at <http://www.dcmathpathways.org> — in particular:

Transfer and Applicability FAQ

https://dcmathpathways.org/sites/default/files/2016-08/Texas%20Transfer%20and%20Applicability_FAQ_2014.pdf

Texas Transfer Inventory

https://dcmathpathways.org/sites/default/files/resources/2016-11/Texas%20Transfer%20Inventory_AY16-17.pdf

Conclusion

Mathematics requirements for criminal justice programs in Texas vary considerably. Many institutions align to Academy of Criminal Justice Sciences and Mathematical Association of America recommendations by requiring or offering mathematics courses that develop quantitative and statistical reasoning, including elementary statistics and contemporary mathematics. Of these two options, statistics is preferred by ACJS.

A small number of institutions require college algebra. Many institutions do not make specific requirements or recommendations, yet include college algebra among their course options. Thus, many criminal justice students may take college algebra as part of their core curriculum despite prevailing professional recommendations.

References

- Academy of Criminal Justice Sciences. (2005 October 28). *Certification Standards for College/University Criminal Justice Baccalaureate Degree Programs*, p.10. Retrieved May 6, 2014, from <http://www.acjs.org/pubs/uploads/ACJSCertificationStandards-Baccalaureate.pdf>
- Johnson, J. A., & Grant, P. H. (2011). "Social Science: CRAFTY Curriculum Foundations II Project." Page 34 in Ganter, S. L., & Haver, W. E., editors. *Partner Discipline Recommendations for Introductory College Mathematics and the Implications for College Algebra*, Washington, DC: Mathematical Association of America.
- Texas Higher Education Coordinating Board. (n.d.). Field of Study Curriculum for Criminal Justice. Retrieved May 6, 2014, from <http://www.theccb.state.tx.us/reports/PDF/0907.PDF?%20CFID=5403234&CFTOKEN=68763764>
- Texas Higher Education Coordinating Board Data. (2014). *Degrees Awarded by Award Level / Curriculum Area 2012-2013* [Database]. Retrieved February 6, 2014 from <http://reports.theccb.state.tx.us/approot/dwprodrpt/gradmenu.htm>



About this resource

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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 Dana Center Mathematics Pathways (DCMP), see www.dcmathpathways.org.

Our briefs provide information on programs for nursing, communications, criminal justice, social work, elementary teacher education, and business.

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