



Dana Center
Mathematics
PATHWAYS



The University of Texas at Austin
Charles A. Dana Center

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Mathematics for social work:

Recommendations from professional organizations and sample requirements from U.S. institutions of higher education

The state of social work education and careers in the U.S.

Social workers serve in a wide variety of organizations, including health settings such as clinics and hospitals, schools, human services agencies, non-profit community organizations, and private practice. The U.S. Bureau of Labor Statistics (2019) reports a faster-than-average increase in job growth for social workers: While the average growth rate from 2016 to 2026 for all occupations is expected to be 7 percent, the growth rate for social work is projected at 16 percent. According to the National Association of Social Workers (NASW), reasons for the rise in demand for social workers include the increasing

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.

mental health needs of our aging population and of our many veterans and their families (NASW, 2019). The NASW projects a shortage of social work professionals in coming years.

Social workers generally enter the field with a Bachelor's Degree in Social Work (BSW); a master's degree (MSW) is required for specialized clinical positions. The number of bachelor's degrees awarded increased from 16,846 in the 2011–12 academic year to 21,044 in 2015–16 (Snyder & Dillow, 2015; Snyder, de Brey, & Dillow, 2019). In 2017, more than 500 BSW programs accredited by the Council on Social Work Education (CSWE) enrolled over 60,000 students (CSWE, 2018b). Although licensure requirements vary by state, clinical social workers are required to be licensed after earning a master's degree and acquiring supervised clinical experience. Social work licensing examinations are administered by the Association of Social Work Boards (ASWB).

As more and more higher education institutions offer multiple mathematics pathways to align undergraduate majors with the most appropriate math courses and content, there is need for guidance in selecting those courses for different programs of study. The Charles A. Dana Center, in support of this approach, has conducted research and provided briefs to guide college and university administrators and faculty in selecting the pertinent mathematics courses for different programs of study. This brief examines the most recent direction on curricula and accreditation standards for the social work degree.



Emphasis on evidence-based practice

We reviewed reports and recommendations from social work professional and accrediting organizations to identify the mathematics courses, content, and learning outcomes most appropriate for the social work degree and social work practice. A major theme among the national social work organizations (e.g., the National Association of Social Workers, the Social Work Policy Institute, the Council on Social Work Education and its Commission on Accreditation, the Association of Social Work Boards) is the importance of evidence-based practice to the profession.

The NASW defines evidence-based practice (EBP) as the use of “well-researched interventions . . . to guide and inform the delivery of treatments and services” (n.d.). It emphasizes the importance of providing resources to the field on evidence-based practices and provides descriptions of many types of research and EBP on its website. Evidence-based practice is also referred to as research-informed practice. The Social Work Policy Institute (2011) also emphasizes the importance of “incorporating evidence-based practice into professional education and enhancing research/practice bridges” (p. iii) as well as using “data and outcome driven decision making” (p. 18). Hence, the question for social work education is “How do we improve the capacity of providers to use research to best deliver care to consumers/patients?” (Institute for the Advancement of Social Work Research, 2007, p. 11).

EBP is also prevalent in the academic literature on social work and social work education. The literature notes the movement of the field in the last two decades towards the use of scientific evidence in practice decision making, as opposed to reliance on experience or the advice of colleagues or supervisors (Howard, McMillen, & Pollio, 2003). One author describes the change as social workers’ evolving from their “altruistically motivated position of simply helping those in need—to wanting to know the answer to that deep and oh so burning question—has my helping made a difference to my clients?” (Holosko, 2010, p. 670). Yet it is not only practitioners who are interested in assessing their effectiveness; managed care entities and the courts are increasingly holding practitioners accountable for their approaches and interventions (Howard et al., 2003).

In the *Journal of Social Work Education*, Dr. Danielle Parrish points out some confusion over the definition of EBP, arguing that “a common definition matters”—as does teaching the EBP process consistently across the curriculum. She defines EBP as a process that equips students with critical thinking skills, particularly regarding

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the critical appraisal of the quality of research as well as the capacity to evaluate and improve a particular course of intervention (Parrish, 2018). Others concur that social workers must “appreciate the key role that scientific findings should play in guiding the selection and application of practice interventions and the importance of remaining current with an ever-growing scientific database” (Howard et al., 2003, p. 238). Implementing an EBP curriculum for students means teaching them how to choose evidence-based interventions, which requires understanding the strengths and limitations of different research methods and studies (Howard et al., 2003).

The accreditation standards for BSW and MSW programs reflect these priorities. The Educational Policy and Accreditation Standards (EPAs), which are determined by the Commission on Accreditation (COA) of the Council on Social Work Education, consist of nine interrelated competencies and component behaviors. Portions of these competencies underscore the importance of the understanding; and use of data and research for the most effective practice.

Competency 4: Engage in Practice-informed Research and Research-informed Practice

Social workers understand quantitative and qualitative research methods and their respective roles in advancing a science of social work and in evaluating their practice. Social workers know the principles of logic, scientific inquiry, and culturally informed and ethical approaches to building knowledge. Social workers understand that evidence that informs practice derives from multi-disciplinary sources and multiple ways of knowing. They also understand the processes for translating research findings into effective practice. Social workers:

- use practice experience and theory to inform scientific inquiry and research;
- apply critical thinking to engage in analysis of quantitative and qualitative research methods and research findings; and
- use and translate research evidence to inform and improve practice, policy, and service delivery. (CSWE, 2015, p. 8)

Competency 7: Assess Individuals, Families, Groups, Organizations, and Communities

Social workers understand that assessment is an ongoing component of the dynamic and interactive process of social work practice with, and on behalf of, diverse individuals, families, groups, organizations, and communities. Social workers understand theories of human behavior and the social environment, and critically evaluate and apply this knowledge in the assessment of diverse clients and constituencies, including individuals, families, groups, and communities. Social workers understand methods of assessment with diverse clients and constituencies to advance practice effectiveness. . . . Social workers:

- collect and organize data, and apply critical thinking to interpret information from clients and constituencies;
- apply knowledge of human behavior and the social environment, person-in-environment, and other multidisciplinary theoretical frameworks in the analysis of assessment data from clients and constituencies;
- develop mutually agreed-on intervention goals and objectives based on the critical assessment of strengths, needs, and challenges within clients and constituencies; and
- select appropriate intervention strategies based on the assessment, research knowledge, and values and preferences of clients and constituencies. (CSWE, 2015, p. 9)

Competency 9: Evaluate Practice with Individuals, Families, Groups, Organizations, and Communities

Social workers understand that evaluation is an ongoing component of the dynamic and interactive process of social work practice with, and on behalf of, diverse individuals, families, groups, organizations and communities. Social workers recognize the importance of evaluating processes and outcomes to advance practice, policy, and service delivery effectiveness. . . . Social workers understand qualitative and quantitative methods for evaluating outcomes and practice effectiveness. Social workers:

- select and use appropriate methods for evaluation of outcomes;
- apply knowledge of human behavior and the social environment, person-in-environment, and other multidisciplinary theoretical frameworks in the evaluation of outcomes;
- critically analyze, monitor, and evaluate intervention and program processes and outcomes; and
- apply evaluation findings to improve practice effectiveness at the micro, mezzo, and macro levels. (CSWE, 2015, p. 9)

The Association of Social Work Boards (ASWB) provides four content area outlines and knowledge, skills, and abilities statements (KSAs) for its social work licensing examinations (ASWB, 2017). For the BSW-level test, no specific math content area is listed, but two content areas—Assessment, and Interventions with Clients/Client Systems—include data collection, measurement, and evaluation as required KSAs, as shown below.

Assessment

- The factors and processes used in problem formulation
- Methods of involving clients/client systems in problem identification (e.g., gathering collateral information)
- Techniques and instruments used to assess clients/client systems
- Methods to incorporate the results of psychological and educational tests into assessment (ASWB, 2017, p. 2)

Interventions with Clients/Client Systems

- Methods to develop and evaluate measurable objectives for client/client system intervention, treatment, and/or service plans
- Techniques used to evaluate a client's/client system's progress
- Methods to create, implement, and evaluate policies and procedures that minimize risk for individuals, families, groups, organizations, and communities
- Methods, techniques, and instruments used to evaluate social work practice
- Evidence-based practice (ASWB, 2017, p. 5)

Similarly, the CSWE (2018a) provides a guide to help social work educators integrate content on professional licensure and regulation throughout the curricula in order to fully prepare students for the licensing process. The guide reiterates the social work professional competencies of evidence-informed interventions, evaluation of practices, gathering of evaluative data, and application of evaluation findings to improve practices (CSWE, 2018a, p. 101).

In sum, while none of the organizations recommends a particular mathematics course as part of the undergraduate curriculum, there is considerable consensus on the quantitative competencies necessary for professional practice. These competencies are in line with the Mathematical Association of America's (MAA) position statement on the math content most needed by students in social sciences fields:

... all social science students need to be able to read and critique published research, both from academic journals and public literature such as political polls and public survey data. Most students who complete a bachelor's degree in a social science will not go on to become independent researchers. Instead, many will become research analysts or public servants who will read, interpret, and disseminate published research. Social science students need a strong foundation in mathematical literacy—particularly in the area of statistics—thereby enabling them to understand the quantitative data process. (Johnson & Grant, 2011, p. 34)

Mathematics course requirements for social work in Texas

According to the CSWE's annual survey of social work programs, the state with the highest number of both BSW enrollees and graduates in 2017 was Texas (CSWE, 2018b). Hence, we examined mathematics requirements for BSW programs in that state and found the Texas Higher Education Coordinating Board had approved a Field of Study (FOS) curriculum for social work in 2018. A block of lower division courses is required for the bachelor's degree in a given program and is guaranteed to transfer from the state's two-year to its four-year colleges. The FOS curriculum mandates one course in statistics, which can be fulfilled by taking either Math 1342 (Elementary Statistical Methods) or Psychology 2317 (Statistical Methods in Psychology). No prerequisites are listed for either course in the lower division academic course guide.

Conclusion

Our review did not find that the professional social work organizations recommend any particular mathematics course for the BSW. However, the content and competencies required by accreditors and for licensure, and those emphasized in the academic literature, clearly point to statistics as being the most appropriate course. Quantitative reasoning and mathematical literacy courses may also be suitable, but given the emphasis and consensus on the need for understanding data and research methods, there is no indication that a college-level algebra requirement would prepare more effective social workers.



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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.

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