## Medical Anthropology Courses and Concepts Tested on the MCAT: A Content Analysis of 40 U.S. Course Syllabi

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ABSTRACT: The Association of American Medical Colleges recommends students seeking to enter medical school complete courses in the social sciences. Despite calls to teach social science-including anthropology-in pre-medical curriculum, little is known about what is taught in undergraduate medical anthropology courses and if concepts taught in those courses addresses topics tested in the MCAT exam. Given the growing number of anthropology students in baccalaureate allied health fields, there is a growing need to examine if anthropological coursework addresses relevant MCAT topics. Using a mixed methods content analysis, this study examined syllabi from forty U.S.-based medical anthropology courses to assess if MCAT concepts are taught in Medical Anthropology courses. Survey data was examined using descriptive statistics; syllabi were analyzed with NVivo using a binary coding scheme and modified grounded theory. Overall, only 8.69% of 155 possible concepts and terms from the Psychological, Social, and Biological Foundations of Behavior section of the MCAT were present in the syllabi. We close with considerations for future course design of medical anthropology courses.

KEYWORDS: Medical anthropology, syllabus, MCAT, teaching, curriculum design

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#### Introduction

The Association of American Medical Colleges recommends that students seeking to enter medical school programs complete courses in the behavioral and social sciences during their baccalaureate education and prior to taking the Medical College Admission Test (MCAT).<sup>1</sup> Despite ongoing calls to teach social science content-including anthropological perspectives<sup>2</sup>—in pre-medical curriculum, little is known about what is taught in undergraduate medical anthropology courses and whether concepts taught in those courses addresses topics tested in the MCAT.

The MCAT addresses 4 broad sections: biology, chemistry, behavior, and critical thinking skills. The behavior section, "Psychological, Social, and Biological Foundations of Behavior," was added in 2015 in recognition that behavioral and sociocultural factors, along with biological factors, are major influences on health and illness.<sup>3</sup> While many of the topics tested in the MCAT may be addressed in medical schools, students are expected to have gained a foundational working knowledge of them through undergraduate or graduate coursework. Given the growing number of anthropology students in baccalaureate allied health fields, there is a growing need to examine if anthropological coursework addresses relevant MCAT topics.

This study examined syllabi from 40 U.S.-based medical anthropology courses to asses if they teach content that is tested on the MCAT. There are 4 purposes to this research. First, this research seeks to understand who teaches medical anthropology courses, the types of intuitions that teach it, and if the courses are intended for pre-medical students. Second, while there is some disciplinary discussion about syllabi<sup>5,6</sup> this

study provides the first systematic analysis of medical anthropology course content. Third, this research seeks to examine if medical anthropology courses teach content tested in the "Psychological, Social and Biological Foundations of Behavior" section of the MCAT.<sup>4</sup> In doing so we hope to provide a baseline from which to examine future pedagogical trends and teaching needs. Finally, we aim to facilitate a conversation regarding the tension between course design and standardization of medical anthropology.

#### The MCAT exam

The MCAT test addresses 5 subject areas: "Biological and Biochemical Foundations of Living Systems," "Chemical and Physical Foundations of Biological Systems," "Psychological, Social, and Biological Foundations of Behavior," "Scientific Inquiry and Reasoning," and "Critical Analysis and Reasoning." The "Psychological, Social, and Biological Foundations of Behavior" section of the MCAT contains 5 "foundational concepts."4 Each foundational concept has a series of content categories. Within each content category are topics and subtopics with additional specificity. To test knowledge of these concepts, test takers are presented with paragraph-length vignettes illustrating a specific behavioral and social science construct, followed by several multiple-choice questions covering the 6 content areas. For example, the section that addresses Concept 9, cultural and social differences influence well-being, might ask questions about "medicalization" or "the sick role."

The new behavioral sections of the MCAT were added in recognition that behavioral and social factors affect health. In a



Creative Commons Non Commercial CC BY-NC: This article is distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 License (https://creativecommons.org/licenses/by-nc/4.0/) which permits non-commercial use, reproduction and distribution of the work without further permission provided the original work is attributed as specified on the SAGE and Open Access pages (https://us.sagepub.com/en-us/nam/open-access-at-sage). 2011 report, Behavioral and Social Science Foundations for Future Physicians, the Association of American Medical Colleges stressed that health is influenced not only by biology and genetics, but human behavior, interpersonal relationships, cultural practices, and the physical environment in which humans reside.<sup>1</sup>

#### Medical anthropology and the MCAT

The AAMC encourages students to complete a variety of social science courses prior to taking the MCAT in order to learn exam content. Despite this, both the MCAT committee and the AAMC have recognized that future physicians still need standardized training in behavioral and social sciences before and during medical school to increase doctors' general knowledge in those areas.<sup>5</sup>

Medical anthropologists and the courses they offer are ideally positioned to teach students a variety of sociocultural topics.<sup>6</sup> Anthropologists regularly research, work, and teach in health services research. They have an unprecedented opportunity to contribute to medical arenas, particularly since their research directly addresses so many of the MCAT's foundational topics. Yet, as anthropologists have pointed out, "making the most of anthropology's particular strengths will require overcoming a series of challenges, particularly in how we as anthropologists communicate with other health professionals."<sup>7</sup> This research will not only assess the content of medical anthropology courses and MCAT testing content, but will encourage medical anthropologists to discuss the transdisciplinary future of anthropology with professionals in the medical field.

Attempts to integrate medical anthropology as a recommended discipline for baccalaureate students have been unsuccessful. The Society for Medical Anthropology<sup>8</sup> unsuccessfully petitioned the MCAT to include medical anthropologists in the design process with the hope that medical anthropology topics would be included in the exam.<sup>9</sup> Despite this shortcoming, the SMA created a subcommittee in 2017 to promote medical anthropology courses. Individuals on the committee believed that their medical anthropology courses were useful for pre-med students who planned on taking the MCAT, however, the subcommittee was short-lived, and little came of it.

#### Syllabi content evaluations

Syllabi serve as a permanent record of a course, as a teaching tool, and to provide context to the course content so that students understand where a course fits in with other courses they have taken or will take.<sup>10</sup> Content evaluations of syllabi are generally conducted to better understand pedagogical trends,<sup>11</sup> learning objectives,<sup>12</sup> instructional strategies,<sup>8</sup> to assess similarities in course content across syllabi<sup>13,14</sup> and to better understand course content.<sup>13</sup> Syllabi are examined using qualitative coding software to rank or thematically examine content. Content evaluations often result in calls to minimize variation between similar courses or to standardize topics across disciplins.<sup>11,15,16</sup>

#### Methodological Approach

The protocol for this study was approved by the Western Washington University Human Subjects Review Board (EX18-084). The collected survey responses and syllabi were kept in a university server in an encrypted and password protected file.

This research utilized a mixed methods approach using Qualtrics XM and NVivo.<sup>17</sup> A Qualtrics XM survey was used to upload syllabi from professors that have taught a medical anthropology course, broadly defined, within the previous two years. The survey was announced and distributed via the Society for Medical Anthropology email list, website and on Twitter. The survey also asked questions regarding course information, professor and institution demographic information, and required an uploaded copy of the respondent's most recent syllabus. Given the small number of complete responses (n = 40), descriptive statistics were used to analyze the survey.

NVivo,<sup>18</sup> qualitative analysis software, was used to organize, qualitatively code, and analyze the syllabi. Relevant MCAT terms and concepts were coded using a binary of present (1) or absent (0) based on whether the content was stated explicitly or if was indicated by an obvious synonym. Other coded content includes titles, learning objectives, assignments, pedagogical resources, weekly themes, and specific MCAT content.

To analyze trends in course titles, titles were coded for either "Medical Anthropology" or "other titles" when there were variations such as "Culture Health and Healing."

"Learning Objectives" were defined as "the knowledge, skills, attitudes, and habits of mind that students take with them from a learning experience."<sup>19</sup> An objective was coded as present if it identified a level of knowledge, skill, attitude, or habit that the student should acquire/develop upon completing the course successfully. Although "goals" and "objectives" have a different pedagogical definition, anything fitting the broad definition of learning objectives was categorized within "Learning Objectives," even if it was listed in a course goal. This was done in recognition that syllabi reflected conceptual and/or terminological confusion between course "goals" and learning "objectives" (eg, the syllabus listed "goals" but meant "objectives," a methodological concern recognized in other studies.<sup>11</sup>

"Assignments" were defined as any task that was used to evaluate student learning, such as papers, presentations, participation, fieldwork or exams. A subcategory provided greater specificity: written assignments were coded further based on length (greater than or less than 8 pages) and type (blog post, reflection, reading response, etc.), presentations were coded based on modality (individual and/or group), and exams were coded based on length (eg, a quiz vs midterm or final exam). When students could present a topic either individually or in a group, this was coded as a group project.

"Pedagogical resources" were defined as any material used for instruction and include books, book chapters, blogs, films, journal articles, magazine articles, newspaper articles, and radio shows or podcasts. A subcategory of "required reading" or "suggested reading" allowed ranking of required books by frequency.

We coded "Weekly Topics/Themes" in syllabi using the MCAT's "Foundational Concepts" in the Psychological, Social, and Biological Foundations of Behavior section of the MCAT as reference. Sub-topics addressed in categories 6 through 10 were coded as present if a specific term was listed on the syllabus or if a topic of the term could be extrapolated from the weekly theme. For example, if a syllabus sub-topic theme listed "religiosity," the MCAT category containing "Religion" was coded as present. For additional accuracy, we manually interpreted and coded terms rather than utilize NVivo's ability to auto code words or synonyms.

The qualitative codes were quantified to calculate average representation of MCAT terms for each category, MCAT "Foundational Concepts" and overall representation. Calculations were completed as follows: (a) Average of Represented terms on subsections: Average of coded MCAT terms for the subsection; (b) Average of Represented Terms in Foundational Concept: Average of coded MCAT terms in all Foundational Concepts; (c) Overall Average of Represented Terms: Average of coded terms from all subsections. For example, to calculate the *overall representation* of MCAT categories indicated on syllabi, the total number of MCAT terms (n = 155) was multiplied by the number of syllabi (n = 40) for a total of 6200 possible references. This number was then divided by the actual number of coded references per syllabus for the average overall representation.

#### Results

#### Professor and course profiles

Most respondents identified as female (n = 28, 70.0%), white (n = 30, 75.0%) and either tenured (n = 17, 42.5%) or in a tenure track position (n = 13, 32.5%) (See Table 1). The majority of professors taught at PhD granting public institutions (n = 24, 60.0%). The vast majority of courses were taught within the discipline of Anthropology (n = 28, 70.0%). Only 40% (n = 16) of the courses were called "Medical Anthropology," and the remaining 60% were variations of the title (i.e. *Culture Health and Medicine, Culture Health and Healing*).

Most courses did not require any prerequisite (n = 27, 68%)and were for undergraduate students (n = 28, 70.0%) in any year of their education (n = 18, 45.0%) (See Table 2). The vast number of professors responded that they perceived that their students would enter a graduate, medical, or health related field (See Table 3) yet only 18% (n = 7) of respondents reviewed MCAT requirements prior to course development. Table 1. Respondent demographic characteristics.

	Ν	%
Number of submitted surveys		
Submitted	105	
Final selection	40	
Respondent tenure status		
Non-tenure track	7	17.5
Tenure track	13	32.5
Tenured	17	42.5
Adjunct	1	2.5
Graduate student	1	2.5
Retired	1	2.5
Respondent's gender		
Male	9	22.5
Female	28	70.0
Non-binary	3	7.5
Respondent's ethnicity or race		
American Indian or Alaska Native	0	
Asian	1	2.5
Black or African American	2	5.0
Native Hawai'ian or Other Pacific Islander	0	
Hispanic or Latino	3	7.5
White	30	75.0
Prefer not to answer	2	5.0
Other	2	5.0
Respondent's institution type		
Public	24	60.0
Private	16	40.0
Respondent institution's highest degree offere	ed	
Bachelor's granting	11	27.5
Master's granting	4	10.0
PhD granting	24	60.0
MD, PhD granting	1	2.5

#### Pedagogical resources

One-half of the courses (25%, n = 20) required 2 or 3 monograph-length ethnographies in their courses, though textbooks were also frequently used (see Table 4 for the most frequently used books). Other resources used included journal articles, films, book chapters, and an assortment of other materials such

Table 2. Department and	d course information.
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	Ν	%
Department		
Anthropology	28	70
Public health	2	5
Sociology	1	3
Other	9	23
Course name		
Medical anthropology	16	40
Other	24	60
Course number		
100-199	2	5
200-299	8	20
300-399	16	40
400-499	9	22.5
500+	5	12.5
Prerequisites required		
Yes	13	33
No	27	68
Student level		
Undergraduate student	28	70
Graduate student	3	8
Both undergraduate or graduate student	9	23
Eligible students		
1st-4th	18	45
2nd-4th	11	28
3th-4th	4	10
4th Only	1	3
Graduate	1	3

as newspaper articles, podcasts, or magazine articles. There was not a significant difference between professors that taught at public versus private institutions regarding the use of required books (n = 21, 52.0%) or journal articles 47.5% (n = 19).

#### Learning objectives

Twenty-eight (70.0%) professors listed learning objectives within their syllabi (See Table 5). Seven (17.5%) syllabi listed 1 or 2 learning objectives; 13 syllabi (32.5%) listed 4 or 5 learning objectives; 8 syllabi (20.0%) listed 6 or more learning objectives; twelve syllabi (30.0%) did not list any learning objectives.

#### Table 3. Perceived student trajectories.

	Ν	%
Career		
Master's degree	24	60
Master's degree in public health	35	88
Graduate school in social science	32	80
Graduate school in clinical or professional field	28	70
Medical school	34	85
Workforce in health-related field	29	73
Non-health related workforce	24	60
Other (resident, technology, engineering)	4	10

The modal number of learning objectives was zero (n = 12), followed by 5 learning objectives (n = 7). Professors at public institutions were slightly more likely to list learning objectives (n = 15, 37.5%) in comparison to professors at private institutions (n = 13, 32.5%). Throughout the vast majority of syllabi students were provided with learning objectives, none mentioned MCAT requirements or competencies.

#### Assignments

Syllabi listed a variety of assessment methods (See Table 6). Fieldwork assignments were present in 75% (n = 30) of syllabi. Short (shorter than 8 pages) and long papers (longer than 10 pages) were used in 85% of courses (n = 34). Quizzes (22.5%, n = 9), exams (60%, n = 24), and presentations (45%, n = 18) were also common forms of assessment. Attendance, participation, and engagement was assessed in 75% (n = 30) of courses.

#### Weekly class topics and the MCAT categories

A word frequency analysis of the weekly themes did not present any trends in weekly topics (See Table 7). There was only one mention of the MCAT in a syllabus. The description of a fieldwork assignment in the syllabus stated,

"This exercise will prepare you to examine alternative views of health care problems and solutions from the perspective of diverse consumers and providers of health care. *It will help prepare for the socio-cultural and behavioral determinants of health and health outcomes in the new MCAT*, for those pursuing training in the medical professions, enhance critical reasoning skills and develop cultural sensitivity." (italics added for emphasis)

Overall, only 8.69% of the possible 155 concepts and terms from the Psychological, Social, and Biological Foundations of Behavior section of the MCAT were represented on the 40 syllabi. The following sections and sub-sections of the MCAT were represented on the syllabi as follows.

#### Table 4. Required books.

6Livingston, Julie2012Improvising Medicine: An African Oncology Ward in an Emerging Epidemic (1st Edition)5Brown, Peter J.; Closser, Svea2016Understanding and Applying Medical Anthropology, 3rd Edition5Fadiman, Anne2012The Spirit Catches You and You Fall Down: A Hmong Child, Her A Doctors, and the Collision of Two Cultures4Holmes, Seth2013Fresh Fruit, Broken Bodies: Migrant Farmworkers in the United Str3Wiley, Andrea S. and Allen, John S.2016Medical Anthropology: A Biocultural Approach2Bourgois, Philippe and Schonberg, Jeffrey2009Righteous Dopefiend (California Series in Public Anthropology)2Brown, Peter J. and Closser, Svea2010Understanding and Applying Medical Anthropology, 3rd Edition2Greenfield, Sydney M.2008Spirits with Scalpels: The Cultural Biology of Religious Healing in	
5       Fadiman, Anne       2012       The Spirit Catches You and You Fall Down: A Hmong Child, Her A Doctors, and the Collision of Two Cultures         4       Holmes, Seth       2013       Fresh Fruit, Broken Bodies: Migrant Farmworkers in the United States         3       Wiley, Andrea S. and Allen, John S.       2016       Medical Anthropology: A Biocultural Approach         2       Bourgois, Philippe and Schonberg, Jeffrey       2009       Righteous Dopefiend (California Series in Public Anthropology)         2       Brown, Peter J. and Closser, Svea       2010       Understanding and Applying Medical Anthropology, 3rd Edition	Cancer
4       Holmes, Seth       2013       Fresh Fruit, Broken Bodies: Migrant Farmworkers in the United State         3       Wiley, Andrea S. and Allen, John S.       2016       Medical Anthropology: A Biocultural Approach         2       Bourgois, Philippe and Schonberg, Jeffrey       2009       Righteous Dopefiend (California Series in Public Anthropology)         2       Brown, Peter J. and Closser, Svea       2010       Understanding and Applying Medical Anthropology, 3rd Edition	
3       Wiley, Andrea S. and Allen, John S.       2016       Medical Anthropology: A Biocultural Approach         2       Bourgois, Philippe and Schonberg, Jeffrey       2009       Righteous Dopefiend (California Series in Public Anthropology)         2       Brown, Peter J. and Closser, Svea       2010       Understanding and Applying Medical Anthropology, 3rd Edition	merican
John S.       John S.         2       Bourgois, Philippe and Schonberg, Jeffrey       2009         2       Brown, Peter J. and Closser, Svea       2010         Understanding and Applying Medical Anthropology, 3rd Edition	ates
2 Brown, Peter J. and Closser, 2010 Understanding and Applying Medical Anthropology, 3rd Edition Svea	
Svea	
2 Greenfield, Sydney M 2008 Spirits with Scalpels: The Cultural Biology of Beligious Healing in	
	Brazil
2 Hahn, Robert A. and Inhorn, 2009 Anthropology in Public Health: Bridging Differences in Culture and Marcia C.	Society
2 Hamdy, Sherine and Nye, 2017 Lissa: A Story About Medical Promise, Friendship, and Revolution Coleman	l
2 Johnson, Steven 2007 The Ghost Map: The Story of London's Most Terrifying Epidemic - How it Changed Science, Cities, and the Modern World	and
2 Joralmon, Donald 2017 Exploring Medical Anthropology (4th Edition)	
2 Mol, Annemarie 2003 The Body Multiple: Ontology in Medical Practice	
2 Paul, Benjamin D. 1955 Health, Culture, and Community: Case Studies of Public Reaction Health Programs	s to
2 Sanabria, Emilia 2016 Plastic Bodies: Sex Hormones and Menstrual Suppression in Braz	zil
2 Wendland, Claire L. 2010 A Heart for the Work: Journeys through an African Medical School	1

Table 5. Learning objectives.

	Ν	%
Learning objectives listed		
Yes	28	70
No	12	30
Number of listed objectives	3	
0	12	30
1	0	
2	1	2.5
3	6	15
4	6	15
5	7	17.5
6	5	12.5
More than 6	3	7.5

Table 6. Assessment methods.

	Ν	%
Assignment type		
Attendance, Participation, Engagement	30	75
Fieldwork	12	30
Short paper	34	85
Long paper	24	60
Presentation	18	45
Quiz	9	23
Exam	24	60

The Foundational Concept 6 on Biological, Psychological, and Sociocultural factors considers the "ways that individuals perceive, think about, and react to the world," resulted in an average syllabi representation of 1.6% (n=33). Sub content category

 Table 7. Word frequency of weekly class themes only words with more than 1 instance in a syllabus are included in this table.

WORD	FREQUENCY
Anthropology	24
Medical	16
Health	15
Culture	7
Healing	5
Global	4
Illness	4
Medicine	4
Sex	2
Technology	2

6A, Sensing the Environment, did not have any representation. Sub content category 6B, Making Sense of the Environment, resulted in a syllabi coverage of 1.36% (n=22). Content category 6C, Responding to the World, resulted in syllabi coverage of 4.75% (n=19).

Foundational Concept 7, that Biological, Psychological, and Sociocultural factors influence behavior and behavior change, resulted in foundational syllabi coverage of 4.07% (n = 88). Sub content category 7A, Individual Influences of Behavior, resulted in a syllabi coverage of 3.75% (n = 33). Sub content category 7B, Social Processes that Influence Human Behavior, resulted in a syllabi coverage of 7.63% (n = 55). Sub content category 7C, Attitude and Behavior, did not have any representation on syllabi.

Foundational Concept 8, Psychological, Sociocultural, and Biological factors tests how "we think about ourselves and others, as well as how we interact with others," and resulted in an average foundational syllabi coverage of 10% (n=164). Sub content category 8A, Self-Identity, resulted in a syllabi coverage of 12.14% (n=34). Sub content category 8B, Social Thinking, resulted in syllabi coverage of 9.38% (n=45). Content category 8C, Social Interactions, resulted in a syllabi coverage of 9.43% (n=83).

Foundational Concept 9, Cultural and Social Differences Influence Well-being, resulted in a syllabi coverage of 19.08% (n = 290). Sub content category 9A, Understanding Social Structure resulted in an average syllabi coverage of 16.3% (n = 163). Sub content category 9B, Demographic Characteristics, and Processes resulted in an average syllabi coverage of 24.42% (n = 127).

Foundational Concept 10, Social Stratification and Access to Resources Influence Well-being, resulted in 19.25% (n=77) representation on syllabi. Sub content category 10A, Social Inequality displayed an average syllabi coverage of 19.4% (n=77).

#### The usefulness of MCAT resources

Less than one quarter of the professors surveyed reported reviewing MCAT content when developing their course content (n = 7, 18.0%). However, over half of the professors believed that it would be useful for future course development if organizations such as the Society for Medical Anthropology or the American Medical Association provided information regarding MCAT requirements (n = 23, 58.0%).

#### Discussion

A primary goal of this study was to examine if U.S.-based Medical Anthropology syllabi contain content tested by the Psychological, Social, and Biological Foundations of behavior section of the MCAT. Other purposes include providing an empirical evaluation of how courses are taught and to promote a discussion on what medical anthropologists teach in their courses. In this discussion, we provide a series of recommendations or topics for broader discussion and future consideration.

The survey indicated that professors that teach medical anthropology courses lack diversity, a concern considering calls to diversify medical education. Responses to the survey indicate that medical anthropology professors are overwhelmingly white women. While the hiring trends in biological anthropology do indicate more women are hired in comparison to men,<sup>20</sup> the number of diverse faculty, using any other metric (eg, ethnicity, non-binary gender identity, ability, etc.), are lacking. As has been discussed elsewhere, we recognize that the lack of diversity among faculty that teach medical anthropology is a concern. In regards to diversity within science and medicine, we agree with others that there are "underlying issues of recruitment and retention in the STEM sciences generally" more specifically because of "the history of Anthropology particularly around questions of race-science, and to the absence of Anthropology at many minority-serving institutions, especially HBCUs, a situation that forestalls pathways to the discipline for many minority students."21

Even though medical anthropology is an advanced subspecialty of anthropology, the majority of the courses were offered to students in all years of their education. Given ongoing calls for increased social science and humanities training in medical education,<sup>22,23</sup> consideration should be given to offering tiered medical anthropology courses over a student's career, including an introductory course that incorporates MCAT concepts, and an advanced course that critiques them. If offered early in a biomedical or biocultural degree program, such a course could instill in students a recognition of the strength of medical anthropology in biocultural/biomedical disciplines. Finally, a senior medical anthropology themed capstone course, a holistic course where the entirety of a student's education coalesces into a singular advanced experience,<sup>24</sup> could then be offered to provide additional subdisciplinary focus prior to entering medical school.

Learning objectives, though viewed by the authors as a tedious accreditation requirement, do help students understand the goals of a course, and in the current study, if MCAT content is addressed. Almost all of the reviewed syllabi contained learning objectives, though not all of the objectives were useful for both faculty and students. Course goals and learning objectives overlapped and many objectives were written poorly or without clarity. Many objectives were not linked to a specific competency that students were expected to gain in the course. Additionally, many objectives listed "fundamental concepts," which upon review were exceptionally advanced and required extensive background knowledge of cultural anthropology.

It is not unexpected that the MCAT was omitted from the learning objectives given that only 18% (n=7) of the faculty reviewed any MCAT exam content. What was unexpected, however, was that nearly all professors surveyed believed that students in their courses were entering health-related fields, including medical school. We encourage medical anthropology faculty to review MCAT testing requirements in order to develop courses that support categories, content, and vocabulary tested in the exam, along with critiques of those categories, and indicate as much in their objectives. We recognize that the strength of the broad and expansive discipline of medical anthropology lies precisely in the ways it departs from standard biomedical practice and testing. However, if medical anthropology wishes to walk in step with the MCAT content, or at least seem relevant to students that will take the MCAT, courses should be designed with MCAT content in mind.

Weekly topics were incredibly diverse and wide-reaching and recurrent themes were not observed. There were no similarities in word frequency of weekly themes, though there were some more frequently used terms and concepts. Culture, disease, illness, body, and global (or variations of each term) were frequently used in weekly themes. While this may be due to the specialty of the faculty teaching the courses, we argue below that courses should be standardized, at least at the introductory level.

Possibly a reflection of who is teaching medical anthropology courses, it appears that few of the top 17 books used in medical anthropology courses were written by faculty of color. However, nearly half of the texts used were likely written by women. With nearly all courses using a text, and given the politics of citation and representation that are recognized in our discipline,<sup>25</sup> we encourage future courses to include texts by faculty of color. As medical anthropology is still developing as a sub-discipline, a diversification of faculty and educational background for incoming professors can further promote the merging of content covered in the MCAT and medical anthropology coursework.

# Should medical anthropology courses be standardized?

Standardization of medical anthropology course content may improve the consistency and public relevance of medical anthropology courses, as was the case for other disciplines.<sup>14-16</sup> To an extent, a degree of standardization already exists between different medical anthropology courses nationwide. Despite the poor coverage of most MCAT topics in medical anthropology syllabi, the MCAT topics "health disparities," "globalization," and "health and medicine as social institutions," were present in nearly 75% of the syllabi. But when contextualized within the entirety of the Psychological, Social, and Biological Foundations of behavior section of the MCAT, these 3 topics only represent a small fraction of concepts in the section.

There are several topics within the Psychological, Social, and Biological Foundations of behavior section of the MCAT that could be explored in detail in medical anthropology courses. Developing course topics and content that maximize content coverage overlap with MCAT testing concepts, such as further exploring social institutions, (shifting) demographics, and social class/inequality will further the integration of social science into clinical medicine by incentivizing pre-med students to take medical anthropology, therefore ensuring a future application and the relevance of medical anthropology within western clinical medicine.

#### Limitations

It is possible that content was undercounted in this analysis. This may have occurred for several reasons. First, it is possible that some anthropology programs address MCAT content in other courses that do not fall under the title of "Medical Anthropology." For example, a program may offer a global health course along with a medical anthropology course, each with a slightly different focus. Second, an instructor may address a topic but not include it on a syllabus. Similarly, students, through final paper or presentation assignments, may address a topic that is not found on the syllabus. Third, there are potential methodological limitations when conducting a content analysis.<sup>11</sup> It is possible that class topics, as listed on the syllabus, might not adequately describe what was taught. This study coded content using MCAT vocabulary and concepts, and it is possible that the term on the syllabus did not sufficiently match the term on the MCAT. For example, if a syllabus stated "inequality: race, gender, maternal and child health" as a weekly topic, we coded the content as the MCAT category "Health Disparities" and it is possible that the categories we chose did not fully capture the breadth of the topic addressed in the courses. Conducting interviews with professors could address some of these concerns, while also shedding light on the decisions faculty made regarding selection of readings and associated educational materials.

#### **Future Directions**

This paper provides a foundation for further research on teaching medical anthropology. Several suggestions emerge from this research. Offering 2 medical anthropology courses, instead of one, may allow instruction room for MCAT content while providing an opportunity to teach specialized and advanced courses. Clearly written objectives and outcomes will provide a better understanding of medical anthropology and if MCAT content will be included. Assigning readings from faculty of color, if not supporting diverse faculty, will enhance pedagogical diversity. These suggestions could be explored in further detail to understand if they improve scores on the Psychological, Social, and Biological Foundations of Behavior section of the MCAT.

Future research would also benefit from learning more about the instructors of medical anthropology courses. Medical anthropology is still relatively new and changing. The academic background of faculty that teach courses in this subdiscipline may shed light on what is taught under the broad header of medical anthropology. If the faculty that teach these courses believe that they are relevant to students entering medical school, it would be useful to know if faculty training matches the perceived goal.

We hope that this paper helps to promote discussions about medical anthropology curricular needs. Should our sub-discipline offer introductory and advanced medical anthropology courses? Should we offer different courses for different student trajectories? Discussing these questions may enhance our understanding of the discipline as well as pedagogical questions. If medical anthropology is indeed an underutilized resource, as the Society for Medical Anthropology argues, the examination of our courses may shed light on its perceived and actual utility in years to come.

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#### **Author Contributions**

TJS and SPB designed the study, framework, analysis, data collection and drafting the manuscript. SPB applied for research funding. TJS conducted the analysis and SPB provided secondary coding and analysis. All authors have approved the final version of the manuscript.

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