**Department of Computer Science**

**Undergraduate Curriculum Committee**

**New Course Textbook Request Form**

Faculty member(s) proposing change: Daniel Schwartz

Date of this request: January 14, 2024

Other Faculty involved in teaching this course or who have particular interest in its contents: Peixiang Zhao

Course Information (prefix, number, title): COP4710, Theory and Structure of Databases

Current Approved Textbook Information (1)

 Title: Database Systems: The Complete Book, Second Edition

 Author: Hector Garcia-Molina, Jeffrey D. Ullman, and Jennifer Widom

 Publisher: Pearson, Prentice Hall

 Date Published: 2009

 URL: https://www.pearson.com/en-us/subject-catalog/p/database-systems-the-complete-book/P200000003515/9780133002010

 ISBN#: 0-13-187325-3, 978-0-13-187325-4

Current Approved Textbook Information (2) if any; type *none* for title if there is no 2nd book

 Title: *none*

 Author:

 Publisher:

 Date Published:

 URL:

 ISBN#:

Proposed new textbook information

 Title: Fundamentals of Database Systems, 7th Edition

 Author: Ramez Elmasri and Shamkant B. Navathe

 Publisher: Pearson

 Date Published: 2021

 URL: https://www.pearson.com/en-us/subject-catalog/p/fundamentals-of-database-systems/P200000003546/9780137502523

 ISBN#: 9780137502523

Motivation: I had a very bad experience with COP4710 last semester. I have been teaching this course for many years using the same sections of the current textbook and using essentially equivalent, if not identical, homework assignments and exams. I designed this course initially based on what I understood to be the ABET specifications, that it be a theory course focused on the mathematical foundations of database management systems. For all those years the final class average was around 85%. Over the previous five years, it ranged from 82% to 87%. Last semester, however, this plunged to 74%, a full 10% drop. Also, I was shocked to see the results of the final exam. This was exactly that same exam that I gave in 2021. In that year, the average was 86%. Last semester the average was 68%, a nearly 20% drop. I used a normalization formula so that everyone received a passing grade, but the reality is that nearly half the students effectively failed the course.

I believe that the reason is that we are getting many students now that are motivated by the prospects of high-paying jobs as software developers but don’t have the intellectual aptitude for this type of course. I’m guessing that they are slipping through our introductory courses with minimally adequate grades, and then start floundering in the upper division theory courses.

Thus, I think that my course is due for a radical shift from a focus on theory to a focus on applications. I think that this is feasible now, since ABET has dropped databases from its list of required courses. In looking at Peixiang’s syllabus, I see that he has in fact already done this. He covers about a third less theory than I do and places greater emphasis on a programming project.

I could follow Peixiang’s example with the same textbook, but I think that the Elmasri and Navathe book is more suitable inasmuch as it is more applications-oriented, introducing SQL programming in the early chapters and pushing the theory into the later chapters. I would also note that this seems to be the current trend with database courses in other universities. If the publication dates are any indication, Elmasri and Navathe seems to be much more popular, having its most recent edition published in 2021, whereas the Garcia-Molina book has not been revised since 2009. Publishers tend to support revisions only of works they are able to sell.

Accordingly, I think that moving to the newer book would be beneficial for the students, and it should make my work as instructor a lot easier.

Last Update of this form: AFTyson 9/14/2020