

Advocating for Open Educational Resources in Maritime Education

Dr. Robert Kidd, State University of New York Maritime College

Dr. Kidd completed his B.S., M.S. and Ph.D. at the University of Florida in 2011, 2013, and 2015 respectively. He worked at the Center for Intelligent Machines and Robotics at UF from 2009 to 2015 researching the use autonomous ground vehicles including ATVs, a Toyota Highlander, and a Posi-Track tractor. Since 2015, he has taught capstone mechanical design courses at SUNY Maritime College. His current research focuses on applications of autonomy to the maritime environment.

Advocating for Open Educational Resources in Maritime Education

Abstract:

This work-in-progress paper reviews the utilization of Open Educational Resources (OER) at a maritime-focused institution to identify and address roadblocks that exist towards the implementation of low-cost or zero-cost courses. This is especially relevant for a maritime institution as there can be higher than average additional costs to complete programmatic experiences such as labs or practicums. While copies of textbooks are often available for free online through illegal postings, faculty should not be encouraging piracy, especially at a “boat school”.

Background:

In tangible numbers, college faculty (82%) acknowledge that textbooks are too expensive but rarely (8%) initiated cost-savings programs for students [1]. These textbooks have increased in cost significantly faster than inflation, outstripping even the cost of tuition, though e-textbooks and e-rentals have changed the cost structures recently. The College Board’s data indicates that in the 25 years from AY 1994-95 to AY 2019-20, tuition at public four-year institutions has increased to roughly 2.25 times after adjusting for inflation, though it has reduced to 2.02 times since the COVID-19 pandemic [2]. However, the U.S. Bureau of Labor Statistics found the cost of college textbooks increased 2.25 times in just under 15 years [3].

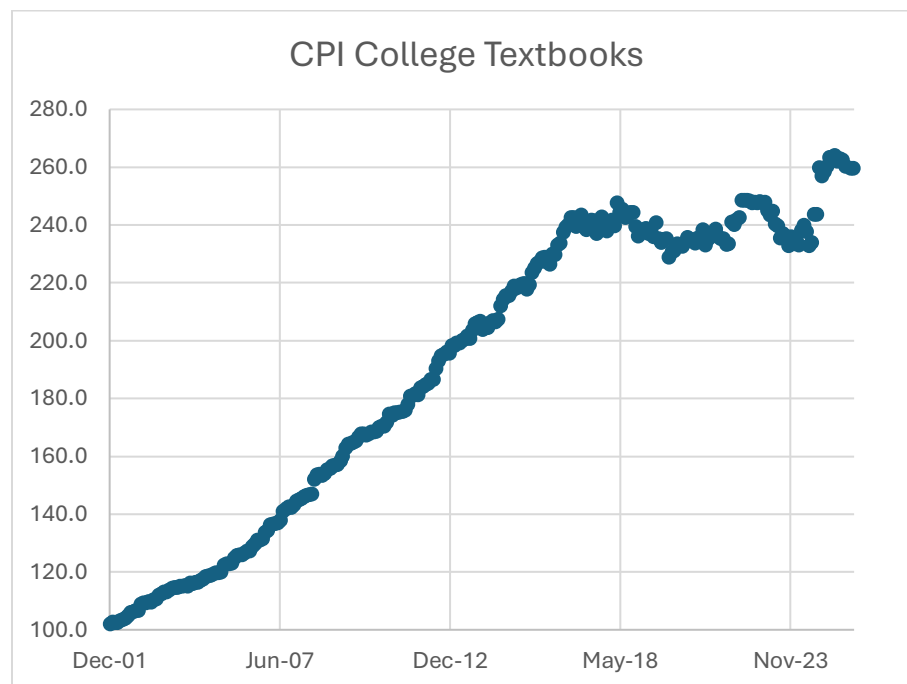


Figure 1: Consumer Price Index relative cost for college textbooks from December 2001 [3]

The data in Figure 1 shows that the costs appear to plateau in 2017 at 2.4 times the cost in December 2001. The College Board estimates that in AY 2024-25 this corresponds to \$1,290 at public four-year institutions [2]. However, this value is based on the published prices for texts. The National Association of College Stores (NACS) research arm's annual research survey in 2025 showed that students spent an average of only \$341 per year [4]. This follows trends found by the Association of American Publishers (AAP) indicating that students have been reporting spending less on textbooks, down 48% from 2011 to 2021 [5]. Other highlights from the report include that 70% of students purchased at least one material and 15% rented at least one material, that students preferred digital materials (37%) over print materials (33%) for the second year in a row, that one in four students opted not to get at least one course material, and that 74% of students had been assigned a zero-cost material [4]. Data from the NACS also is reported to show that Engineering ranks 4th in highest cost based on major [6]. It must be noted here that these two sources – the NACS and AAP – are providing this data as biased sources as their profit models depend on textbook sales.

One of the significant factors in these reports do not clearly address is that students simply do not buy the textbooks. Some may opt to pirate materials illegally or attempt to get by without the resources. Unfortunately, that can lead to decreased learning outcomes. Data has shown that utilizing OER can improve student performance, with the highest impacts being on Pell grant recipients and historically underserved students [7]. However, other data suggests there is no connection between performances for historically underserved students and the use of open textbooks [8]. In both cases, students in these communities generally self-report taking fewer classes, or dropping classes, or avoiding classes due to the costs of textbooks [7, 8].

To summarize, the textbooks faculty assign tend to be prohibitively expensive for students and can lead to students choosing not to purchase the book and hope for the best, or to delay their academic progression. The students who do this also tend to be historically underserved [7, 8], low income [7], and/or first generation students [8]. Equipping faculty to change over to cheaper alternatives can mean students have improved grades, faster academic progression, and better perceived performance.

Current Need for and State of OER:

For students enrolled at SUNY Maritime College, there is an option to receive U.S. Coast Guard credentialing as licensed engineers on marine vessels. This results in higher earning potential, but with higher educational expenses. While highly variable between majors and years, over the course of 8 semesters, students in the program must pay approximately \$4,200 for uniforms [9], \$880 for license-specific orientation, \$640 for barbershop access and drug testing, and \$30,420 for required summer semester fees in addition to required summer tuition [10]. The students pay additional lab and course fees for the program of roughly \$954.30 for activities such as firefighting training on top of course fees for their academic degree. All told, this results in roughly \$37,000 in fee-based expenses. These students are also required to live on campus and purchase meal plans leading to an added cost of roughly \$8500 per semester. Assuming the average student would spend only 2 years on campus and purchase a commuter meal plan for the other semesters, the additional housing and meal plan costs can lead to a total expense of roughly

\$68,000 over four years. Assuming a standard 10-year repayment plan at the current federal interest rates of 6.39% [11], this would result in a total cost of \$92,000.

This does not consider indirect costs such as textbooks, tools, and miscellaneous supplies not included in the lab fees, which are estimated at \$4046 annually [12]. While textbooks may seem like a relatively small drop in the bucket, these costs mean students are hyper-aware of the expenses related to their education and even minor reductions can be appreciated.

At SUNY Maritime College, campus perceptions towards OER can be characterized as confused, chaotic, and decentralized. For context, Maritime began a strong push for OER, along with funding, in the mid-2010's which began to gain traction just as the pandemic hit in AY 2019-20. Funding was redirected towards more immediate needs and most progress was lost. In addition, the library faculty member responsible for managing OER left the institution and the position was unfilled. Eventually, this position was merged with another, and the duties were mostly forgotten. This left a significant gap in continuity and institutional memory.

In preparation for this paper, a review was performed regarding all OER courses that were reported through the campus Registrar's Office. It was discovered during this process that the database for OER courses was wildly out of date. The list had been essentially static since 2020 or 2021. Some courses that were no longer OER were still being reported as such while other added OER courses were not included. This was eventually traced back to a responsibility that was included in the librarian position that was never filled and was part of the lost institutional memory.

To review the inaccuracy of the list and provide a snapshot of improvements since the list was updated, the prior list of courses is shown in Table 1. The data is broken down by department and reported based on the number of courses and sections from AY 2017-18 through AY 2024-25.

Table 1: OER Sections from AY 2017-18 thru AY 2024-25

Department	Courses	Credits per Course	Sections
Engineering	1	3	9
Humanities	2	3	16
Mathematics	4	4	117
N/A (First Year Experience)	1	1	55

As a demonstration of the issues with this data, the author would like to highlight that there was only one OER Engineering course listed and it belonged to them. However, the course was not a true OER course. Instead, it utilized a "recommended" text that was "any edition" of Engineering Mechanics: Statics by R. Hibbeler. At best, this would be a Zero Textbook Cost (ZTC) or Low Textbook Cost (LTC) course, but that's a stretch since the latest edition of the textbook would not qualify. This was utilized from 2019 through 2021. Subsequent sections of the course had the latest edition of the Hibbeler text as a required resource. In Fall 2025, the author used a proper

OER text: Engineering Statics: Open and Interactive by D. Baker and W. Haynes. The author must also note that while the Mathematics and Humanities courses are accurately listed as OER, the First Year Experience course is also not an OER course as a book is purchased for the student through a common read program.

Due to significant curriculum revision within several majors at Maritime including a USCG Engine License major, all USCG Deck License majors, and the Humanities major, several academic departments and the Registrar's office were unable to complete requests for updated information. While disappointing for this paper, the situation is representative of the current OER environment: considered an afterthought for when there is free time. Results will be presented at the 2026 Annual Conference and provided in follow-on papers.

Proposed Intervention:

To revitalize the OER culture on campus, a multi-year endeavor was soft-launched in AY 2024-25 to increase engagement. The first phase included finding and securing development grants that provided faculty with a small financial incentive to transition select courses to utilize OER instead of their traditional texts. This has resulted in the creation of 3 OER courses with one more in a trial phase and one more in development. For most of these courses, faculty members were surprised at the cost of the books they were asking students to get. In one instance, the course under development, the text has a published price of \$397.75. Faculty were easily won over to the concept when presented with these costs. However, faculty at the workshop were generally uninformed about OER. Of 15 attendees out of 120 faculty, only 3 (20%) knew what OER was. That total includes 2 faculty who participated in the initial development grants.

The second phase has been a series of workshops to help faculty transition to OER texts starting in Fall 2025. The first of these workshops provides a justification for the need of the effort. An example used is a 5th semester Mechanical Engineering student taking 13 credits could spend between \$510 (used) and \$879 (new). The second stage will be to use the grant recipients as ambassadors to their departments to help demonstrate how to transition away from the traditionally used textbooks. These workshops will also work toward coaching to secure future funding to expand these efforts.

Survey data will also be collected with faculty to gain understanding of current perspectives of faculty as well as determine volunteers for one-on-one assistance transitioning to OER courses. A goal of this effort will be to determine a true baseline for OER text usage across campus and then increase it 10%.

As this is a WIP paper, the result of this intervention is not known.

Conclusion:

This effort has exposed a severe lack of understanding among faculty about OER and a significant opportunity for the campus to increase its OER position. In anecdotal conversations with other institutions, this seems to be a prevalent situation. Textbook affordability became a concern right before the pandemic, but interventions were paused. For other institutions, it is

hoped that this paper will serve as a reminder to reevaluate their current OER status before beginning to revitalize those efforts.

References

- [1] M. Hanson, "Average Cost of College Textbooks," 12 10 2024. [Online]. Available: <https://educationdata.org/average-cost-of-college-textbooks>.
- [2] J. Ma, M. Pender and M. Oster, "Trends in College Pricing and Student Aid," College Board, New York, 2024.
- [3] U.S. Bureau of Labor Statistics, "College textbooks in U.S. city average, all urban consumers, not seasonally adjusted," U.S. Department of Labor, Washington D.C., 2026.
- [4] National Association of College Stores, "NACS Student Watch Report: Course Materials Spending Stable, High Satisfaction with Access Programs," National Association of College Stores, Oberlin, 2025.
- [5] American Association of Publishers, "Publisher Affordability Campaigns Deliver Decline in Student Spending on College Course Materials During 2021-2022 Academic Year," 31 Aug 2022. [Online]. Available: <https://publishers.org/news/a-victory-for-affordability-student-spending-on-course-materials-declines-22-during-the-2021-2022-academic-year/>. [Accessed 19 January 2026].
- [6] L. Welding, "Average Cost of College Textbooks, Full Statistics," Best Colleges, 24 June 2025. [Online]. Available: <https://www.bestcolleges.com/research/average-cost-of-college-textbooks-statistics/>. [Accessed 19th January 2026].
- [7] N. Colvard, C. E. Watson and H. Park, "The Impact of Open Educational Resources on Various Student Success Metrics," *International Journal of Teaching and Learning in Higher Education*, vol. 30, no. 2, pp. 262-276, 2018.
- [8] A. T. Nusbaum, C. Cuttler and S. Swindell, "Open Educational Resources as a Tool for Educational Equity: Evidence From an Introductory Psychology Class," *Frontiers in Education*, vol. 4, 2020.
- [9] SUNY Maritime College, "Tuition and Fees," 2025. [Online]. Available: <https://www.sunymaritime.edu/cost-aid/tuition-fees>. [Accessed 29 April 2029].
- [10] SUNY Maritime College, "Estimated Charges 2025-2026," September 2025. [Online]. Available: <https://www.sunymaritime.edu/sites/default/files/2025-09/estimated-all-charges-2025-2026.pdf>. [Accessed 29 April 2026].

- [11] U.S. Department of Education, "Interest Rates and Fees for Federal Student Loans," U.S. Department of Education, 1 July 2026. [Online]. Available: <https://studentaid.gov/understand-aid/types/loans/interest-rates>. [Accessed 19th January 2026].
- [12] SUNY Maritime College, "2026-2027 Undergraduate Cost of Attendance," 2026. [Online]. Available: <https://www.sunymaritime.edu/admissions/cost-attendance>. [Accessed 29 April 2026].