

Math151 in-class exercise on August 19, 2015:

Are you getting your money's worth? How much of the costs of this class are covered by your tuition? That is we wish to estimate the costs of a class and how much is paid the students to cover this cost.

In general if

C = Total costs to UTK of offering the class (in dollars)

and

R = Revenue generated to UTK from students taking the class (in dollars)

then a question is whether $R > C$ or not and if it is then how much more are students paying for this class than the costs might justify.

What information do you need to address this?

1. Your tuition paid that is attributable to this class
2. The costs for the class

For 1:

Current tuition (Maintenance fee) is \$5339 per semester and \$14434 out-of-state. This doesn't include fees charged to students for a host of things that may indirectly contribute to the course (e.g. the Technology Fee pays for the software licenses we use such as Matlab).

Assume we ignore out-of-state and assume essentially all students are paying the in-state rate.

This is a 3-hour class and students are required to take 15 hours so ignoring the fact that some are taking more than this (because you are charged extra for doing so) this means that 1/5 of the tuition charges paid by students this term are for this course - so the income is \$1068 per student. If there are 100 students enrolled, this brings in \$106,800

For 2:

Costs include personnel (teacher and TA), facilities, utilities, and the hosts of other things required for a course to run here (e.g. registration systems, payroll systems, IT infrastructure, etc.) Let's ignore everything except personnel for now. Then cost is for the TAs and professor. TAs are paid about \$22,000 per year plus fringe benefits costs which brings the cost to about \$26,000 plus tuition, which is about \$12,400 per year, so each TA costs about \$38,000 per year or \$19000 per semester.

The professors costs is about \$212,000 per year (including fringe benefits) or \$106,000 per term if teaching this class was a full-time responsibility - but it is only a 40% time responsibility (based on the instructor's effort certification) so the professor costs attributable to this course is about \$42,500.

Thus the total personnel costs is approximately \$43,000+\$38,000 (for 2 TAs) or \$81,000 and so approximately $C=81,000$ and $R=106,000$.

So from above, it appears that you are paying more for this course than it costs in terms of direct personnel costs by about $R - C = \$106,000 - \$81,000 = \$25,000$ or about \$250 per student. Equivalently, your tuition is covering an additional \$25,000 (or \$250 per student) for additional costs born by UTK beyond personnel costs.

What is missing from this analysis?

1. It doesn't account for what the State pays to UT – for this fiscal year total Tuition and Fees paid by students is \$387,333,000 and if all students were in-State the ratio of fees to tuition and fees is about $(6218-5339)/6218 = 879/6218 = .14$ so the amount of tuition is $387,333,000 \times .86 = 333,106,000$ and the State appropriations to UTK are \$191,195,000 so for every \$1 of tuition revenue, the State adds $191,195,000 / 333,106,000 = .57$ Thus in reality, your registration for this class is generating an additional $.57 \times \$106,800 = \$60,800$ for UTK. So the total amount UTK is getting in revenue for this class, from your tuition and from the State of Tennessee is $R = 60,000 + 106,000 = 166,000$

2. It doesn't account for all the additional costs of running the University, but we have a reasonable way of calculating this from the UTK Indirect cost rate which is 53% for on-campus instruction and incorporates all costs associated with externally-funded teaching on-campus. Using this, the actual cost to UTK to offer this course is obtained by multiplying the personnel costs by 1.53 to get $\$81,000 \times 1.53 = 124,000$

So with tuition and State payments the income is \$166,000 so there is still an additional \$42,000 coming to UTK above the full costs of the course. Thus you (and the State) are essentially subsidizing other courses or activities at UTK at about \$420 each when all costs and income from tuition and state funds are included.

3. A major assumption in the above analysis is that all students pay the in-State rate but about 88% of undergraduates are in-State, so the above income estimates from tuition are likely too low. How much too low? Each out-of-State student pays an additional \$9100 in tuition so in a class of 100 there would be approximately 12 out-of-State students generating an additional \$109,000 per semester of which 1/5 is attributed to this course so an additional \$21,800 of income would be obtained.

Note that the above has many other assumptions, but this is what we would call a reasonable first-cut analysis.

Bottom line: Your tuition payments for this course are used to cover much more of the UTK costs than are attributable, even when indirect costs are considered, to this course.

References:

<http://onestop.utk.edu/your-money/tuition-fees/>

UTK Budget 2016 - Board of Trustees, June 2015

<http://bot.tennessee.edu/resources/2015-06-25-materials.html>

Research F&A Rates

<http://research.utk.edu/new-fa-rate-agreement-for-utk/>