An Assessment of Economic Viability of Academic Programs

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Learning Outcomes

After Participating …

- You will know which metrics should you review and track to assess the economic viability of a program.
- You will understand the main caveats of the financial model most commonly used by technical professionals to calculate tuition revenue of academic programs.
- You will be able to calculate the tuition revenue of a department while capturing how much of this revenue is attributed to each of the programs offered by this department and how much is attributed to service to students from other disciplines.
- You will be able to measure the strength of the financial position of the department while assessing the economic viability of its programs.
- You will be able to provide useful, accurate, reliable and timely information about the revenues and costs of academic programs in your institution to empower data-driven decisions.
- You will be able to communicate the model effectively and get the buy-in of all stakeholders.

Let's Agree on Definitions!

- **An academic department** is a subdivision of a school/college in a higher education institution that is responsible for instruction and research in a specific discipline(s). Example: The Department of Physics in the School/College of Arts and Sciences.
- **An academic program** is a degree granting undergraduate or graduate program. Example: The Physics (B.Sc.) or Physics (M.Sc.) offered by the Department of Physics.
- **Service courses** are courses offered by the department to students from other disciplines. Example: The physics courses offered by the Department of Physics as essentials for engineering students or philosophy courses offered by the Department of Philosophy as part of the Core Curriculum Program.
- **Academic Program Review** is a formal assessment of the different aspects of the academic program to evaluate its overall effectiveness.
- **Assessment of the financial viability of an academic program** is an evaluation of the ability of the program to generate sufficient income to meet its operating expenses on an ongoing basis (teaching and non-teaching activities required to deliver the program).

Why Do We Need To Conduct Program Reviews?

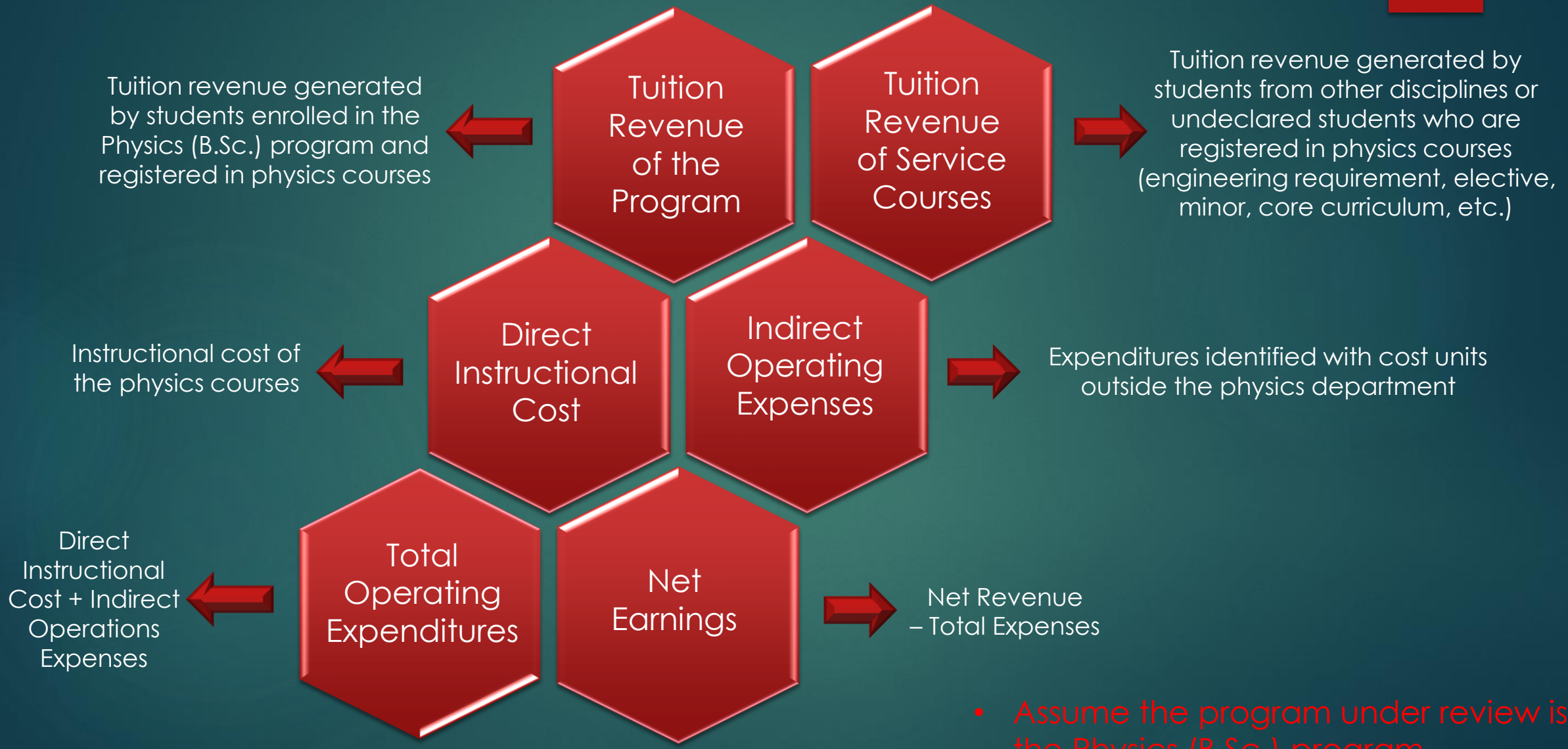
- Offerings of academic institutions have been expanding over time, but in many instances without thorough examination. This resulted in curriculum outgrowing the resources allocated for them.
- Students are looking for value and relevance, the competition is fierce, the financial pressures are severe, and few institutions have sufficient resources to do everything to the level of quality its stakeholders aspire.
- The information resulting from the review will guide campus leaders in making decisions and setting priorities. Without that, the University will be relying on guesswork.
- The review generates in-depth communication between the academic departments and the university administration.
- The review might revitalize or transform a struggling program, it might help make a new program a success, and it might identify strategic areas for growth.

The Scope of Assessment of Academic Programs

- Limiting the scope of academic program assessment to the economic viability of the program may represent a dangerous flaw in any assessment.
- Some programs may not be doing well financially but they have a high impact and they are central to the mission of the institution. On the other hand, being financially sound does not necessarily mean the program is academically sound.
- While finances should not be the sole factor in any academic assessment, the financial viability of academic programs is a critical component of assessing the program's overall sustainability and ability to do things to the level of quality its stakeholders aspire.
- Examining program economics helps in cultivating responsibility for resource allocation among school and department leaders and helps them make informed decisions.

What Variables Are Included in Program Reviews at AUC?

Economic Viability Metrics



- Assume the program under review is the Physics (B.Sc.) program

The Financial Model

- Whereas finance professionals often have the desire to employ complex models, faculty need practical metrics that are easy to understand and easy to use.
- The more complex the model becomes; the more skeptical stakeholders are about the accuracy of the data and the quality of the results.
- Simplicity in designing the model is key to success. “Simplicity is the ultimate sophistication” - Leonardo da Vinci.
- The financial model is composed of two key variables.
  1) Program revenue (tuition revenue of the program and any other funds like income from fundraising or donations).
  2) Program expenses (direct and indirect).

Tuition Revenue (The Traditional Approach)

- The Student Credit Hour Matrix used by many technical professionals in calculating tuition revenue charges the revenue to the student by his/her primary major.

Student's ID	Student's Primary Program	Course Identifier	Credit Hours
Student 1	Program A	Course A	3
Student 1	Program A	Course B	3
Student 1	Program A	Course C	3
Student 1	Program A	Course D	2
Student 1	Program A	Course E	4
Student 2	Program B	Course F	3
Student 2	Program B	Course C	3
Student 3	Program A	Course B	3
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Tuition Revenues

Program	Fiscal Year 2020	Fiscal Year 2021	Fiscal Year 2022
Program A	$ …	$ …	$ …
Program B	$ …	$ …	$ …
Program C	$ …	$ …	$ …
Program D	$ …	$ …	$ …
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Caveats of the Traditional Approach in Calculating Revenues

- The traditional approach does not take into consideration students pursuing a double major because it can only capture the student's primary major.
- It does not capture undeclared students.
- It does not differentiate between the courses a student enrolled in the program completes as part of his/her program degree requirements and courses the student completes for other reasons (completing a minor, exploring other majors, etc.).
- It does not differentiate between the revenue generated from students enrolled in the program and the revenue generated from service to other disciplines. Hence, it does not distinguish between departments that offer economically viable programs and service departments.

Expenses (The Traditional Approach)

- The approach used by many technical professionals in calculating expenses of an academic program relies on faculty workload documents which provide data on the teaching load of individual faculty, course assignments, sabbatical leaves, and complete or partial release from teaching for administrative service every semester.

Caveats of the Traditional Approach

- After spending an enormous amount of time collecting data about what every faculty member teaches in an attempt to associate faculty with specific programs, a new semester starts and the teaching load changes and these findings are no longer accurate.
- To proceed with this approach, technical professionals use individual faculty salaries and benefits which require disclosure of confidential information.

Our Proposed Financial Model

- We present a simple and practical financial model to analyze the revenues and expenses of the program under review and assess its economic viability.
- This cost model can be easily sustained and iterated by faculty with minimal time and effort and it can be easily customized to fit the parameters of different institutions.
- This cost model addresses the caveats of the traditional approach.

Total Credit Hours Generated (CHG): Proposed Approach

- A certain department offers three undergraduate programs, two graduate programs as well as service to other disciplines.

Academic Year	CHG by Students Enrolled in Program A	CHG by Students Enrolled in Program B	CHG by Students Enrolled in Program C	CHG by Students Enrolled in Program D	CHG by Students Enrolled in Program E	CHG by Students from Other Undergraduate Disciplines	CHG by Students from Other Graduate Disciplines	Total Credit Hours Generated
1	1,494	1,866	1,652	339	237	1,680	24	7,292
2	1,699	2,319	1,624	270	243	1,428	30	7,613
3	1,705	2,870	1,376	201	174	1,542	30	7,898
4	2,081	3,379	1,250	198	258	1,693	51	8,910
5	2,397	3,608	1,265	240	477	1,994	12	9,993
6	2,959	3,945	1,369	264	462	2,028	36	11,063
Average	2,056 (23.4%)	2,998 (34.1%)	1,423 (16.2%)	252 (2.9%)	309 (3.5%)	1,728 (19.6%)	31 (0.3%)	

Total and Net Tuition Revenue

- To calculate the total tuition revenue, the credit hours generated by each category of students are multiplied by the corresponding flat tuition rate for each academic year.
- In institutions where the tuition credit hour rate is charged based on the number of semester credit hours enrolled, we recommend calculating an average flat rate for each group of students (undergraduate and graduate) for simplicity.
- To calculate the total tuition net revenue we deduct any financial aid, fellowships, tuition remission or any sort of subsidy. To keep the model simple, it suffices to collect aggregate data on the percentage of institutional financial assistance.
- Any financial aid that is funded by an external donor or the government is not considered an expense and is treated like out-of-pocket tuition.

Institutional Financial Assistance

Financial Assistance	Fiscal Year 2020	Fiscal Year 2021	Fiscal Year 2022
Institutional UG Assistance	%	%	%
Institutional GR Assistance	%	%	%

Total Tuition Net Revenues

Program	Fiscal Year 2020	Fiscal Year 2021	Fiscal Year 2022
Program A	$ …	$ …	$ …
Program B	$ …	$ …	$ …
Program C	$ …	$ …	$ …
Program D	$ …	$ …	$ …
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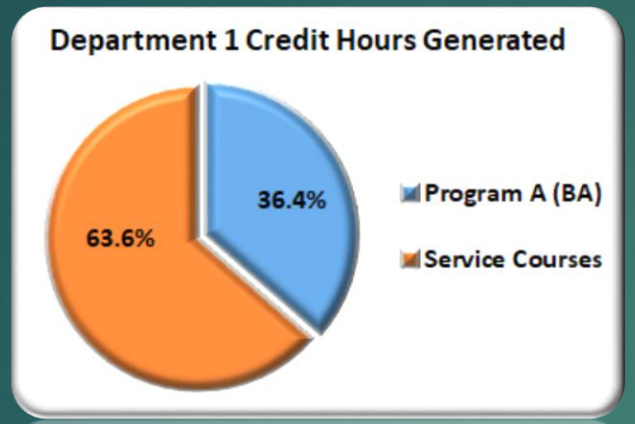
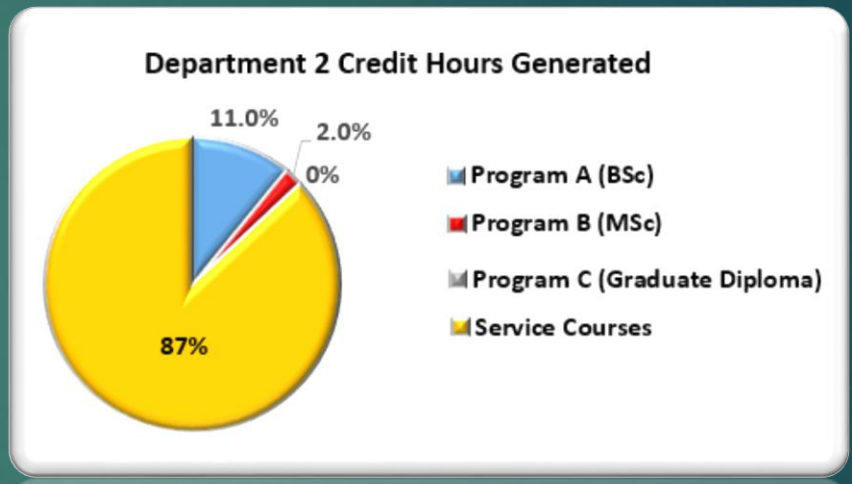
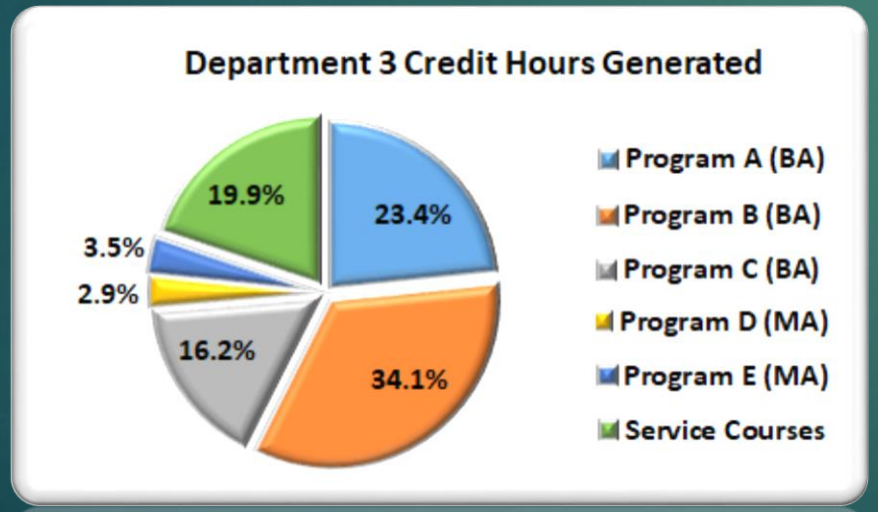
Classification of Credit Hours Generated by Program







Expenses (Our Proposed Approach)

- We propose a simple and practical cost model that sticks out with high level data.
- We look at the total cost for running the department while still being able to capture how much of these expenses are attributed to each program and how much is attributed to service courses enrolled by students from other disciplines.
- Expenses of the department offering the program under review:

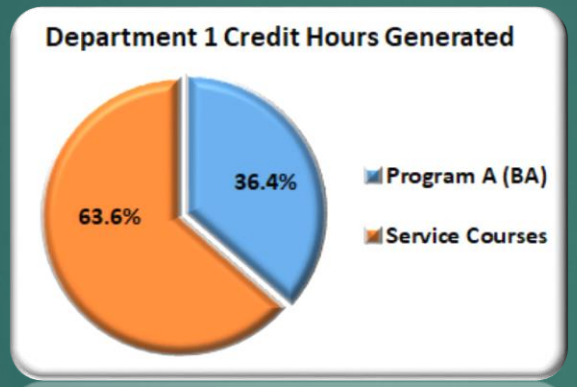
1) Direct Operating Expenses: Costs associated with people and services directly related to instruction (costs captured in the operating budget of the department) like for example: (1) Salaries of instructional faculty and staff members in the department. (2) Benefits of full-time faculty and staff. (3) Supplies and services used by the department for instructional purposes. (4) Depreciation cost.
2) Indirect Operating Expenses: Expenses identified with cost units outside the department that support instruction like for example: Libraries, IT, Finance, Facilities and Operations, HR, Utilities, etc.). .

Allocating Fixed Indirect Expenses to Departments

1) Total credit hours generated at the University level.
2) Total credit hours generated at the department level.
3) Total operating expenses for the University.
4) Total operating expenses for the academic department.
5) Total expenses outside the academic departments (Total operating expenses for the University minus the sum of operating expenses of all academic departments).
6) Fixed indirect expenses per credit hour = Total expenses outside the academic departments ÷ Total credit hours generated at the University level ((5)/(1)).
7) Fixed indirect expenses allocated to the department = Fixed indirect expenses per credit hour ∗ Total credit hours generated by the academic department offering the program under review ((6)∗(2)).
8) Total expenses of the department offering the program under review = Total operating expenses of the department + Fixed indirect expenses allocated to the department ((4)+(7)).
9) Use the total expenses of the department offering the program in (8) and the percentage of credit hours generated by students enrolled in the program to get the total expenses associated with the program under review.

Allocating Fixed Indirect Expenses to a Program

- Example: Around 36% of credit hours generated by Department 1 come from students enrolled in Program A. Hence the total expenses associated with Program A is 36% of the total expenses associated with Department 1 (from (8)).



- Net earnings of Program A = Total tuition net revenue of Program A
  – Total expenses associated with Program A.
- The margin ratio of Program A = (Revenue – Expenses) ÷ Revenue.

Outcome of the Economic Viability Assessment

- If the net earnings of a program are positive the program is economically viable otherwise the program is financially unsound.
- A program that is financially unsound but supports the mission of the institution should be subsidized by other programs that are economically viable.
- If a program is financially unsound and it is not central to the mission of the institution, the administration may reconsider its decision to continue subsidizing that program.
- In such cases, it is worth calculating the revenue of the program less the direct instructional cost without including overheads(especially fixed overheads). If this calculation excluding overheads shows that the program generates positive margin the administration is better off keeping the program or restructuring it rather than shutting it down.

Thank you for your attention!

Happy to take questions