

NCAIR 2026
Induced Course Load Matrix (ICLM)
Modeling and Use Cases

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Integrated (Induced) Course Load Matrix

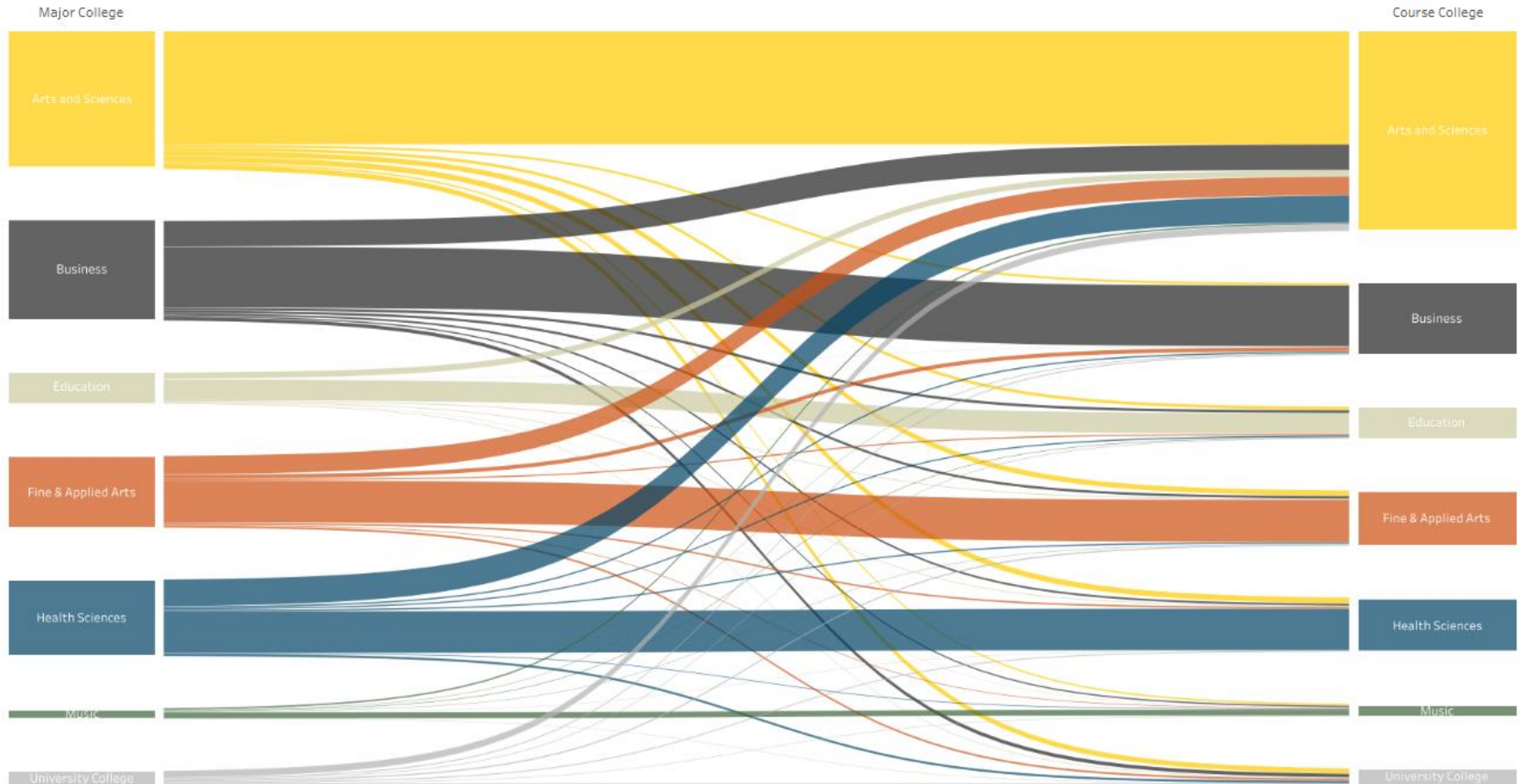
An **Induced Course Load Matrix (ICLM)** is used to estimate how demand in one academic program *induces* course demand across departments. (known as a Markov Matrix, Probability Matrix, Transition Matrix, etc.)

$$\textit{Induced Load}_{Major,Dept} = \frac{\text{Total enrollments by students in Major in Dept courses}}{\text{Number of students in Major}}$$

- Forecasting course demand
- Budget and Faculty Planning (Faculty hiring needs, graduate assistants, classroom utilization)
- How new programs or growth in existing disciplines may impact all departments (e.g. increase in nutrition management increases demand in biology)

Fall 2025 Course Load Matrix

Fall 2025



SCH by Course and Major / Major and Course

Course ↓
Major College →

ABOUT THIS DASHBOARD
SHOW FILTERS

Induced Course Load Matrix

Credit Hours by Course

	Arts and Sciences	Business	Education	Fine & Applied Arts	Health Sciences	Music	University College	Grand Total	
R C 1000 EXPOSITORY WRITING	1,569	1,443	276	834	888	111	558	5,679	
	27.6%	25.4%	4.9%	14.7%	15.6%	2.0%	9.8%	100.0%	
R C 2001 INTR WRITING ACROSS CURRICULUM	1,695	1,329	240	777	864	87	117	5,109	
	33.2%	26.0%	4.7%	15.2%	16.9%	1.7%	2.3%	100.0%	
CIS 1060 BUS ANALYTICS SPREADSHEET TECH	51	3,213	3	15	9		45	3,336	
	1.5%	96.3%	0.1%	0.4%	0.3%		1.3%	100.0%	
ECO 2030 PRINCIPLES OF MICROECONOMICS	198	2,304	9	243	204	48	141	3,147	
	6.3%	73.2%	0.3%	7.7%	6.5%	1.5%	4.5%	100.0%	
BIO 1201 BIOLOGY IN SOCIETY I	918	963	267	243	429	36	222	3,078	
	29.8%	31.3%	8.7%	7.9%	13.9%	1.2%	7.2%	100.0%	

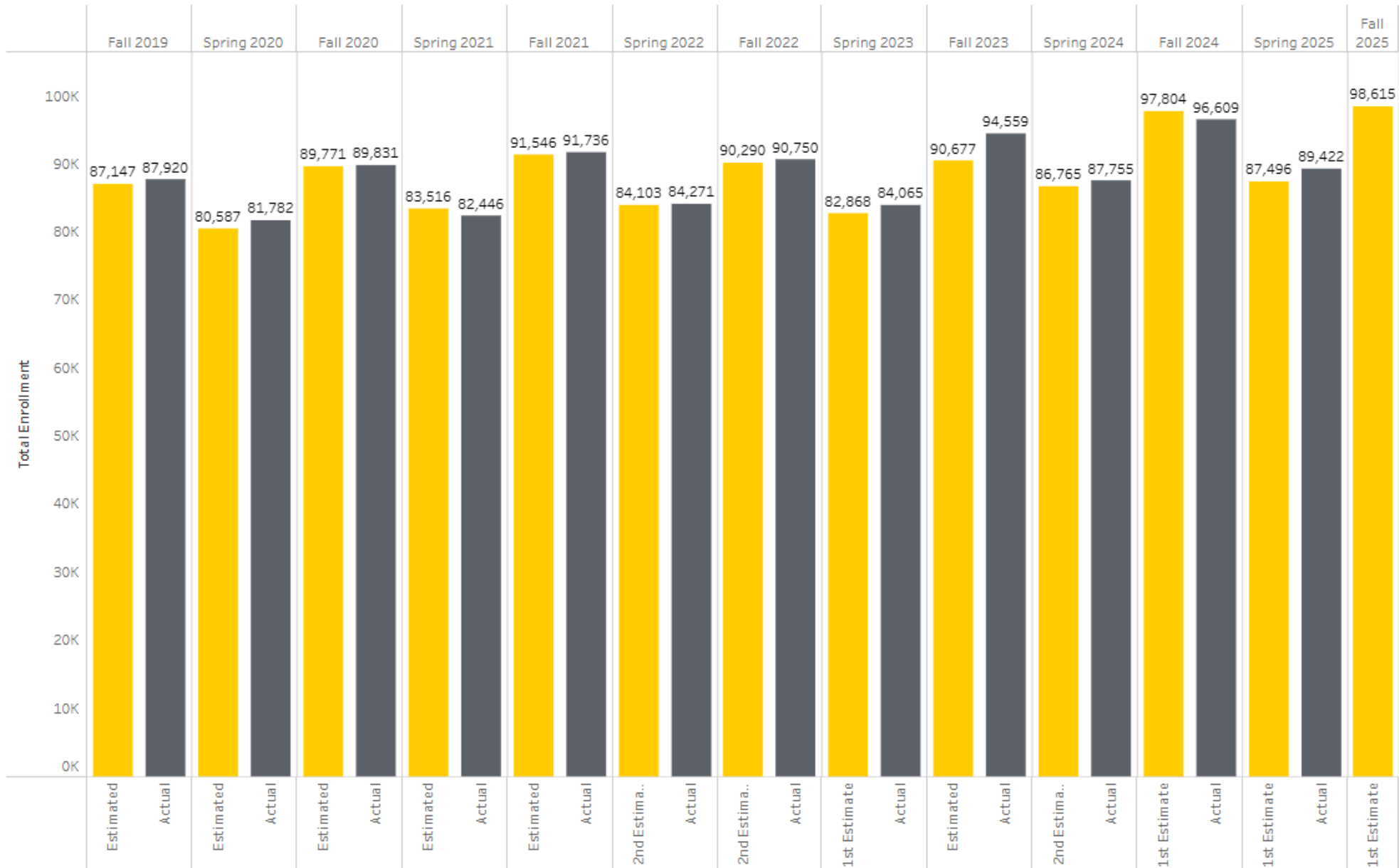
Course College →

FI

Credit Hours by Major

	Arts and Sciences	Business	Education	Fine & Applied Arts	Health Sciences	Music	University College	Total	
355* - Management	4,550	10,092	496	520	376	238	633	16,905	
	26.9%	59.7%	2.9%	3.1%	2.2%	1.4%	3.7%	100.0%	
	3.4%	21.0%	2.4%	1.4%	1.0%	3.2%	6.1%	5.7%	
252* - Psychology	12,449	335	670	653	1,514	221	491	16,333	
	76.2%	2.1%	4.1%	4.0%	9.3%	1.4%	3.0%	100.0%	
	9.2%	0.7%	3.3%	1.8%	4.2%	3.0%	4.7%	5.5%	
142* - Biology	11,358	33	93	495	437	151	563	13,130	
	86.5%	0.3%	0.7%	3.8%	3.3%	1.2%	4.3%	100.0%	
	8.4%	0.1%	0.5%	1.4%	1.2%	2.0%	5.4%	4.5%	
	3,577	7,179	327	480	260	178	530	12,531	

Undergraduate Course Estimates



Detailed Undergraduate Course Estimates

Undergraduate Course Enrollment & Seat Projections | All Courses

Term Type		Term	Course College				Course Department				Course Subject				Course		Course Level		
(All)		(Multiple values)	(All)				Communication				COM				(All)		(All)		
			Fall '21 Est.	Fall '21 Actual	Spring '22 2nd ..	Spring '22 Act..	Fall '22 2nd Est.	Fall '22 Actual	Spring '23 1st ..	Spring '23 Act..	Fall '23 Est.	Fall '23 Actual	Spring '24 2nd ..	Spring '24 Act..	Fall '24 1st Est.	Fall '24 Actual	Spring '25 1st ..	Spring '25 Act..	Fall '25 Estimate
University Total			3,221	3,232	3,121	3,082	3,021	3,110	2,934	3,115	2,855	3,441	3,400	3,279	3,590	3,435	3,392	3,373	3,542
College Total			3,221	3,232	3,121	3,082	3,021	3,110	2,934	3,115	2,855	3,441	3,400	3,279	3,590	3,435	3,392	3,373	3,542
Fine & Applied Arts	COM	Dept Total	3,221	3,232	3,121	3,082	3,021	3,110	2,934	3,115	2,855	3,441	3,400	3,279	3,590	3,435	3,392	3,373	3,542
	COM 1200		313	316	186	183	304	318	177	205	317	366	261	217	398	396	223	238	403
	COM 1300		115	92	91	75	90	109	73	81	103	98	96	86	106	107	88	95	103
	COM 1600		56	55	50	55	56	50	56	49	39	54	50	56	60	66	56	69	77
	COM 2101		236	240	234	216	242	239	216	213	226	235	233	241	245	234	248	231	239
	COM 2105		39	65	60	64	64	62	62	86	60	88	98	84	96	90	84	86	91
	COM 2106		45	42	23	24	39	24	24	48	25	23	57	44	24	24	46	48	25
	COM 2110		57	58	26	27	53	55	25	29	57	63	34	61	68	68	60	60	68
	COM 2115		2	2		6	2		6	10		2	10	11	1		10	8	1
	COM 2121		52	60	47	92	58	56	90	88	55	85	96	90	92	89	94	92	89
	COM 2124		51	75	49	54	69	81	51	90	85	116	96	119	120	122	115	120	124
	COM 2131		29	29			25	27			28	31		30	31	30	33	30	31
	COM 2150											23			28	29			30
	COM 2180		49	58	29	30	55	57	29	30	67	54	38	30	59	60	32	30	64
	COM 2181		49	27	45	56	24	17	53	55	21	30	70	58	35	30	63	74	32
	COM 2250		18			14		14	14	18	13	19	16	5	26	9	6	13	7
	COM 2312													2			2		
	COM 2313							27		27	24	21	21	18	23	16	20	14	18
	COM 2314							15		17	11	10	16	18	11	9	21	13	11
	COM 2315		36	73	49	67	71	33	66	32	29	26	35	24	29	11	24	20	19
	COM 2316		39	26	25	28	26	25	29	34	18	36	33	36	36	37	42	37	45
	COM 2325		38	28	46	45	27	51	43	40	44	60	52	50	61	58	57	50	58
	COM 2416		27	48	29	35	49	41	38	45	31	55	36	25	55	52	30	63	59
COM 2610		35	36	18	14	36	36	14	22	25	21	19	24	27	22	25	27	23	
COM 2612		6	13	10	8	13	16	8	10	12	16	6	7	17	21	8	22	23	
COM 2618		111	93	102	92	89	100	89	90	82	110	104	89	123	112	103	109	115	

Moving Forward Beyond the ICLM – DegreeWorks Future Planning

DegreeWorks Student Course Needs

Dashboard Refresh 3/23/2026 12:57:55 AM

Based upon the DegreeWorks student audits, this dashboard shows the counts of students needing select courses they have yet to complete and are not currently enrolled in an upcoming term. Course-based filters include, among other options, 'take type,' which allows the user to filter for 'may take' or 'must take' courses based on a student audit. For the student-based filters, please note the 'additional filters' option. The additional student filters include selecting the '% degree complete' option, among other variables.

17,344

Total with Course Needs

Use this filter to exclude any completed prerequisite course(s) **Course(s) Completed/IP** (All)

Additional Filters

Course Filters →

Use the course filters to review specific course(s) needed

Course College (All) | Course Department (All) | Course Subject (All) | Course(s) Needed (All) | Take Type (All) | Block Type (All) | Block Label (All)

Student Filters →

Most Recent Enroll Term 202610 | Career (All) | Student Type (Multiple values) | Student Campus (All) | Class (All) | College (All) | Department (All) | Major/Minor (All) | Major Declared? (All)

Current Status

Enrolled

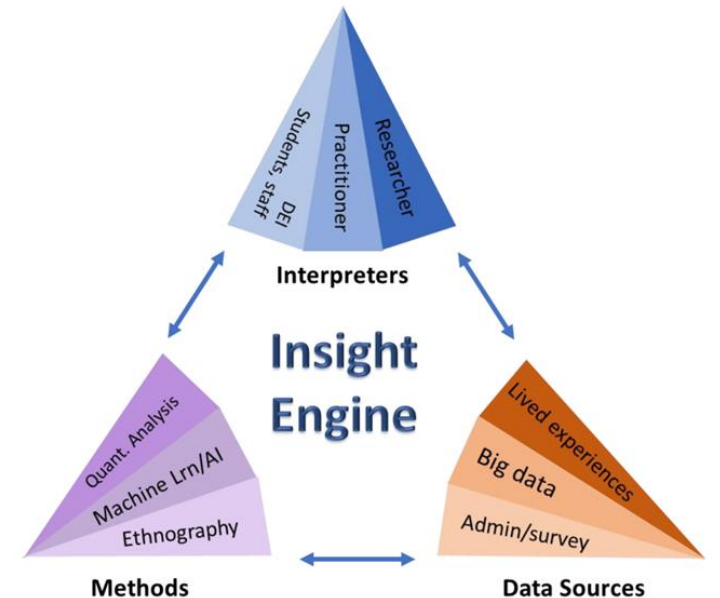
Courses Needed Summary

Must Take May Take

Course	Must Take	May Take	Total
ECO 2040	1,069	2,898	3,967
TEC 2601		3,939	3,956
COM 3117		3,787	3,787
HON 3516		3,690	3,690
PHL 2015		3,688	3,689
S_D 2400		3,657	3,683
BUS 4000	3,670		3,670
Second Year Writing (R_C ..		3,669	3,669

UNCW Case Study

- Vision and Institutional Need (Why)
- Strategic Framing (So What)
- Analytical Build (How)
- Early Insights (What we're learning)
- What's Next (Where we're going)



Vision and Context

Vision:

Develop a framework that connects program demand to instructional supply in a way that supports strategic planning and funding allocation decision.

Institutional Need:

UNCW lacked an integrated framework connecting program demand to course demand.

Strategic Framing

- Internal Pressures (positive)
- Decision-making gap
- Historical Reality

Strategic Framing (Continued)

- Reframing the Goal
- Redefine Instructional Contributions
- Connect the Dots (Demand, Activity, and Supply)

Analytical Build: Connecting ICLM to the Enrollment Funding Model



-dimensional analytical framework. This offers the ability to map SCHs and enrollment headcount to the college/department offering courses as well as to the

the *funding model* versus how many SCHs it *actually teaches*.

s to the teaching load in other colleges (i.e., "College A majors generate SCHs in College B's courses") in colleges.

course assignments, or potentially redesigning academic offerings. to invest, grow, or realign resources.

arly understand how funding assumptions compare to actual instructional output.

time to see trends in cross-college teaching or changes in funding alignment. Focus on a college/major/course to examine their specific instructional dynamics.

ment Funding	Induced Course Load Matrix-College
by College	Induced Course Load Matrix-Department
Department	Induced Course Load Matrix-Course
SCH trend by Course	

Select view

Snapshot Name

Funding Term Snapshots

Funding Term Snapshots

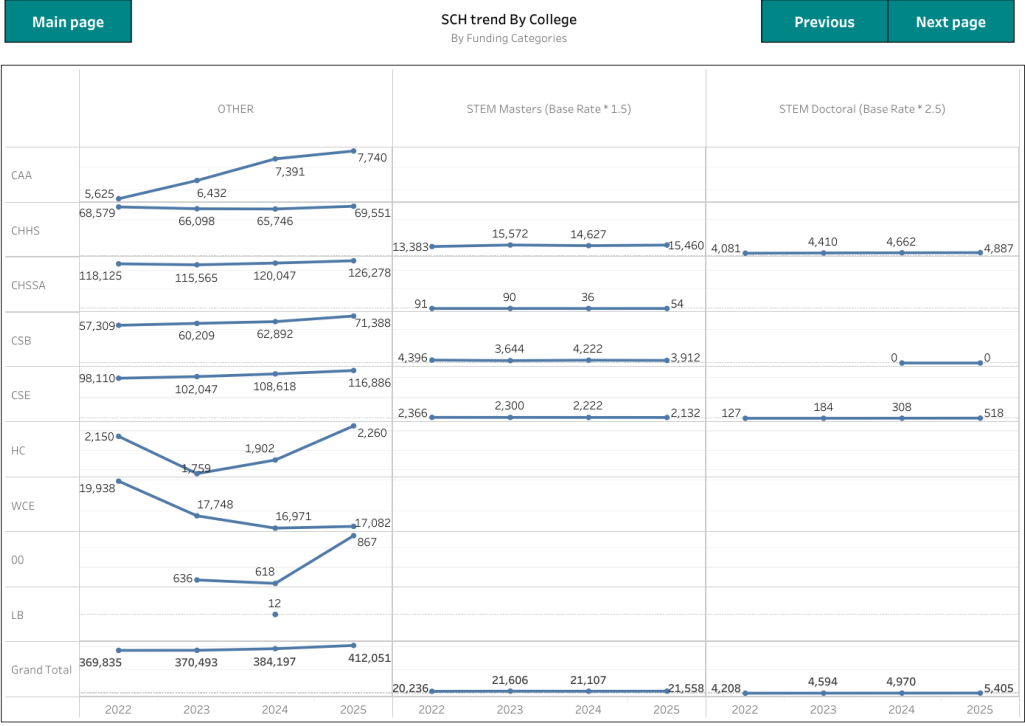
```
IF RIGHT([snapshot_term_code],1) IN ('1','6') AND [snapshot_type_code] = '3' THEN 'Y'
ELSEIF RIGHT([snapshot_term_code],1) IN ('7','8') AND [snapshot_type_code] = '4' THEN 'Y'
ELSE 'N'
END
```

Aligning Instructional Reality with Financial Planning

Bridging Analytics and Funding

- The ICLM provides the analytical bridge between:
 - Enrollment growth targets
 - Instructional capacity and cost
 - SCH-based funding assumptions

Analytical Build: Connecting ICLM to the Enrollment Funding Model



Use Cases for Budget & Planning

- Identify units absorbing disproportionate instructional load without proportional enrollment growth.
- Support evidence-based resource requests tied to actual instructional demand.
- Stress-test enrollment scenarios by examining downstream instructional impacts.

Strategic Implication

- Enrollment growth does not distribute evenly across the instructional ecosystem.
- The ICLM allows leadership to move from reactive SCH explanations to proactive funding alignment.

Data Foundation & Development

section_CollegeComb



```
IF [section_college_code] IN ('BA','XB') THEN 'BA'
ELSEIF [section_college_code] IN ('ED','XE') THEN 'ED'
ELSEIF [section_college_code] = 'UC' THEN 'CAA'
ELSEIF [section_college_code] IN ('HH','XH') THEN 'HH'
ELSEIF [section_college_code] = 'HA' THEN 'CHSS'
ELSEIF [section_college_code] = 'SE' THEN 'CSE'
```

```
ELSEIF [section_college_code] IN ('AS','XA')
AND (
    [section_department_code] IN (
        'INS'
```

Department Name Xwalk



```
IF [section_department_code] IN ('UCOL') THEN 'UCOL'
ELSE [section_department]
END
```



Data Reality & Crosswalk Development


In an ideal world, business practices align perfectly with data structures

To bridge this gap, custom crosswalks were developed to:

- Align program, course, and organizational structures

Ensure analytical outputs reflect how the institution actually operates, not just how data are stored

From Static Reporting to Exploratory Analytics: Dashboard Design & Tooltips



	CAA	CHHS	CHSSA
CHHS	1,998 3.2% 23.2%	36,464 57.8% 87.3%	10,952 17.4% 15.4%
CHSSA	1,098 2.7% 12.7%	1,188 2.9% 2.8%	31,596 77.5% 44.3%
CSB	2,064 3.5% 23.9%	1,277 2.2% 3.1%	10,798 18.5% 15.2%
CSE	2,369 3.6% 27.5%	2,055 3.1% 4.9%	13,355 20.2% 18.7%
WCE	303 2.9% 3.5%	353 3.3% 0.8%	1,386 13.1% 1.9%

4,237 11.2%	137 0.4%	694 1.8%	21 0.1%	492 1.3%	37,809 100.0%
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All taught 37,809 student credit hours to All students with a CHSSA major. This represents 100.0% of the total course credit hours enrolled by All students with a CHSSA program and 17.3% of the total course credit hours taught by All.

Advanced Tooltip Development

- Tooltips extend each matrix cell with:
 - Multi-year SCH trends for that demand-supply relationship
 - Term-over-term directional change (growth, stability, decline)
 - Contextual comparison to overall institutional SCH trends
- This allows users to discuss:
 - Is this instructional dependency structural or temporary?
 - Is growth driven by enrollment expansion or curricular design?

Why Tooltips Matter

- Keeps the primary visualization clean while embedding trend intelligence exactly where decisions are made.

Early Insights

- ICLM Data Changes the Conversation
- ICLM Improves Current Processes

What is Next?

- Integration into Planning
- Strengthen Adoption and Expand Use Cases
- Stop, Collaborate, and Listen

Discussion Questions

How could a model like this influence resource allocation, faculty workload, or program evaluation decisions on your campus?

Where do you see the biggest opportunity or the biggest risk in applying something like this on your campus?