

Managing the Academic Enterprise to Improve Student Success

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GOAL: STUDENT SUCCESS AND ACHIEVEMENT

Provide transformational experiences for students from diverse backgrounds through high-quality education and opportunities for personal and professional development.

SUB-GOAL: Improve our students' academic success with outcome-based, experiential learning opportunities and vital student-support services.

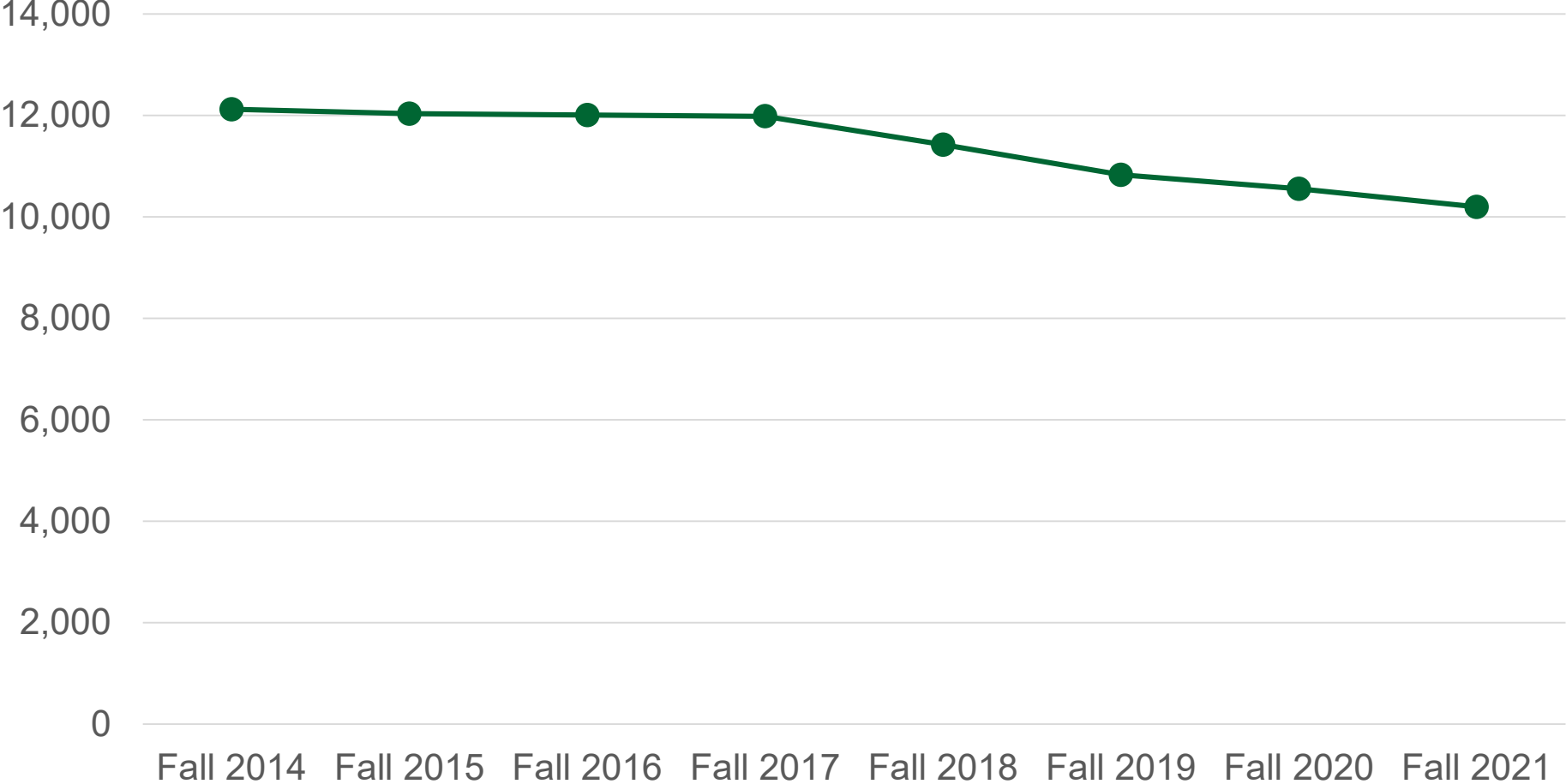
ACTION ITEM: Systematically use student outcome data to inform changes across programs, colleges, and the university.

CRITERION 4. TEACHING AND LEARNING: EVALUATION AND IMPROVEMENT

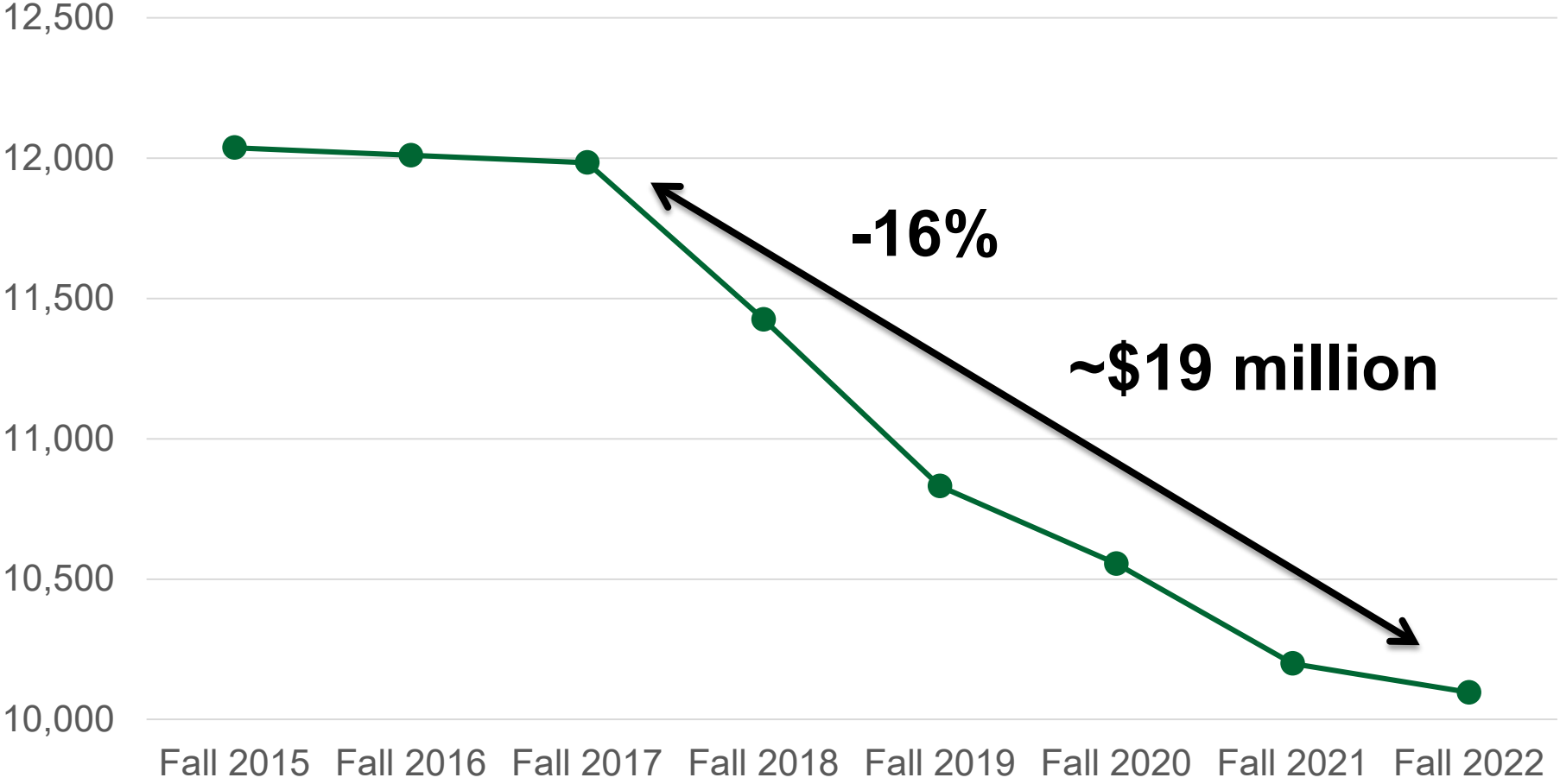
The institution demonstrates responsibility for the quality of its educational programs, learning environments and support services, and it evaluates their effectiveness for student learning through processes designed to promote continuous improvement.

CORE COMPONENT 4.C. The institution pursues educational improvement through goals and strategies that improve retention, persistence and completion rates in its degree and certificate programs.

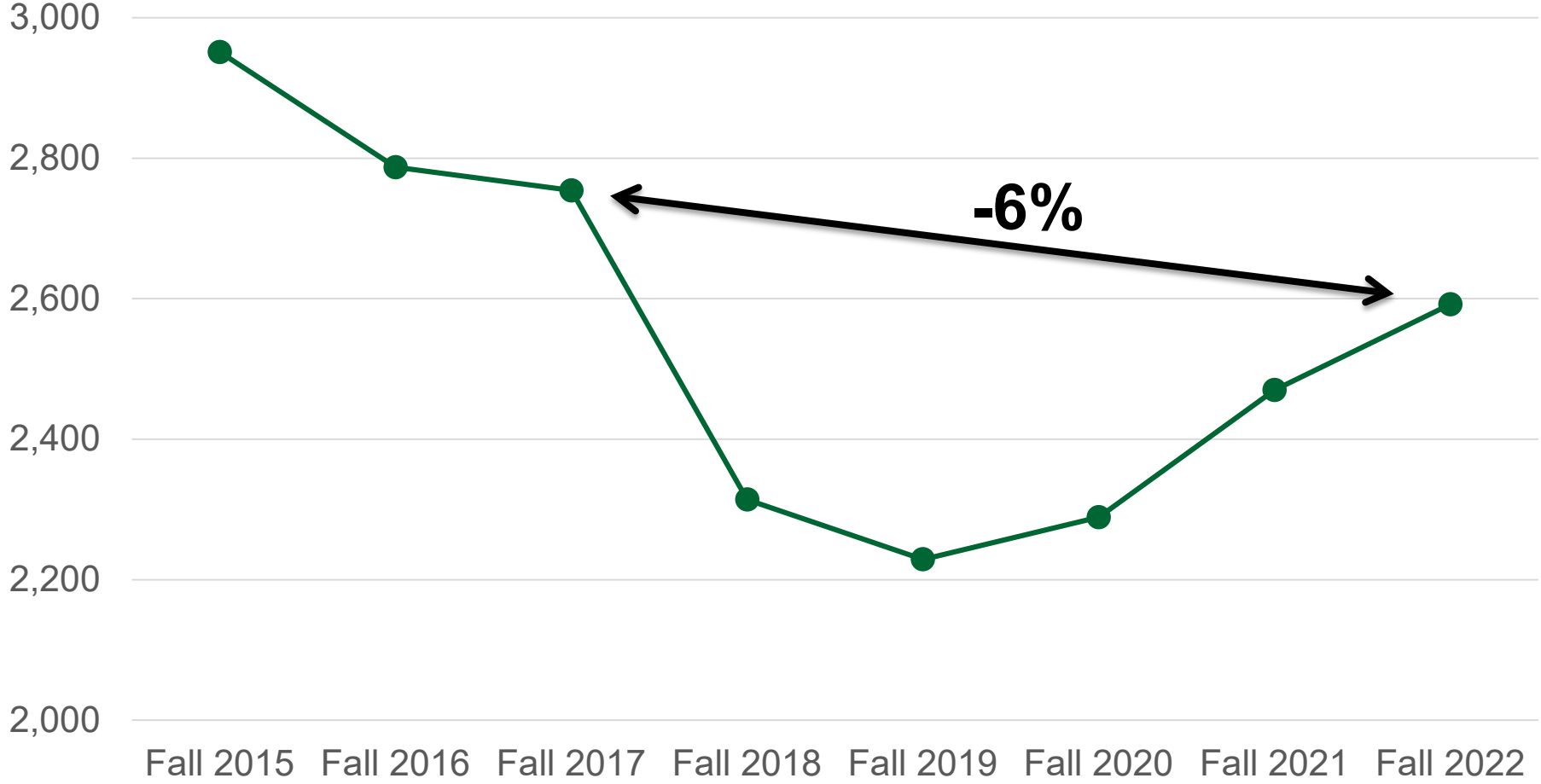
Undergraduate enrollment is decreasing



Undergraduate enrollment is decreasing



Freshmen enrollment is lower though may be increasing



NDSU FALL-TO-FALL RETENTION

Levels	Retention
First-to-second year	~80%
Second-to-third year	~90%
Third-to-fourth year	~95%

FIRST-YEAR STUDENT RETENTION

Cohort	Fall-to-Spring	Fall-to-Fall
Fall 2018	92.9%	78.9%
Fall 2019	93.3%	82.0%
Fall 2020	90.9%	76.1%
Fall 2021	90.9%	75.2%

TRANSFER STUDENT RETENTION

Cohort	Fall-to-Spring	Fall-to-Fall
Fall 2018	89.3%	73.9%
Fall 2019	88.5%	78.8%
Fall 2020	87.6%	74.4%
Fall 2021	85.1%	72.0%

NDSU FALL-TO-SPRING RETENTION

Student Identity	Fall-to-Spring
Am. Indian	80.4%
Black	79.9%
Hispanic	85.2%
White	92%
NDSU	90.9%

UNDERGRADUATE RETENTION

Fall '21 to Spring '22: **90.9%** retention

859 student not retained
≅ \$4 million for spring

Increase retention to **93%**
+200 students ≅ \$1 million for spring

STUDENT SUCCESS AND ACHIEVEMENT

Achievement of students' academic, life, and career goals; influenced primarily by:

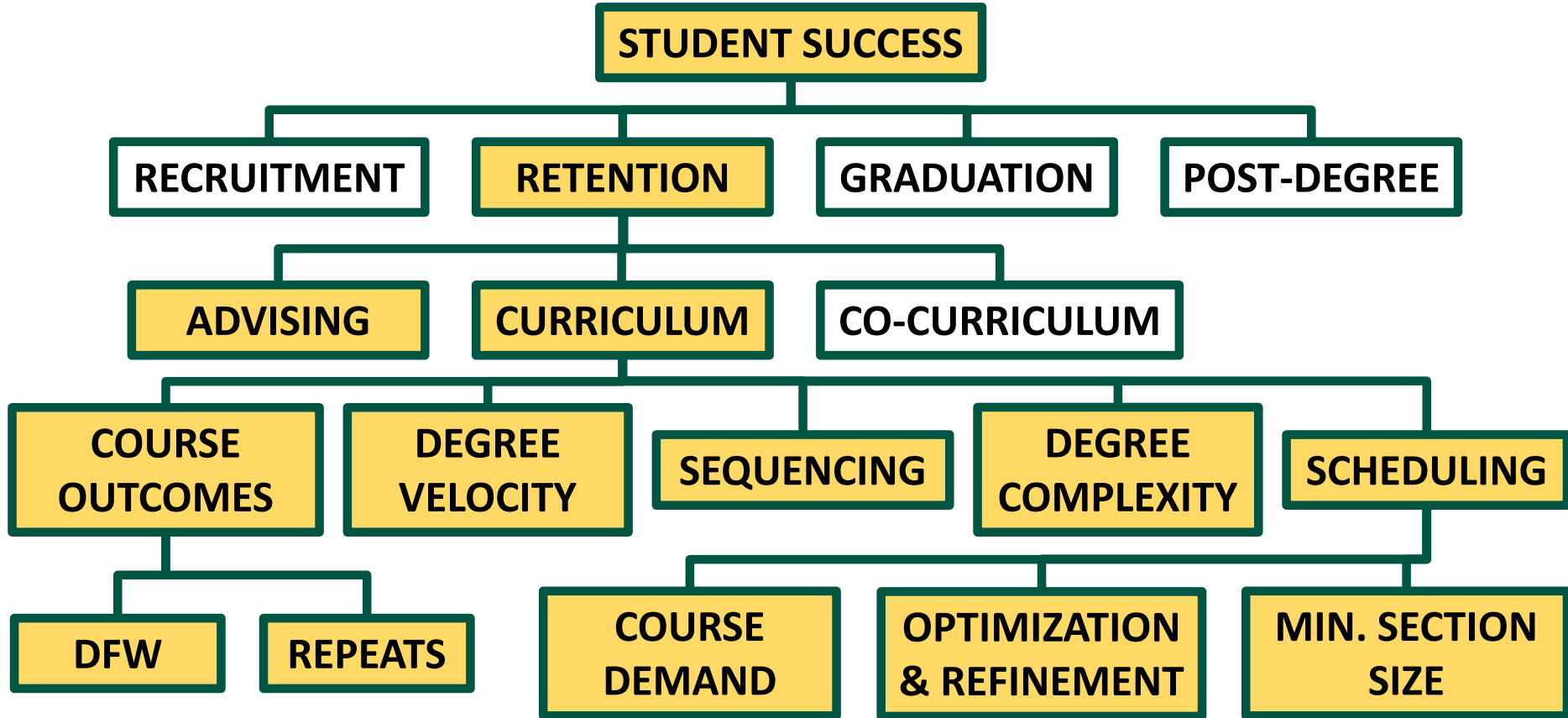
- Advising
- Curricula
- Teaching
- Co-curricular experiences

How can NDSU improve student success given enrollment challenges and limited resources?

Identify improvements within the academic enterprise framework by:

- interrogating **curricula**,
- ensuring **quality teaching**,
- coordinating **advising** activities, and
- optimizing the course **schedule**.

ACADEMIC ENTERPRISE FRAMEWORK





Is Your Degree Program Too Complicated?

Poor design and needless bloat are derailing students.

July 28, 2021

Curricular Analytics

The curriculum a student must traverse en route to a degree is the most foundational element for student success.



We provide tools that allow you to visualize your curricula and degree plans, and analyze their impact on student progress.

Increased curricular complexity is associated with decreased completion rates and increased completion times, especially for historically marginalized groups.

Biological Sciences Core Requirements

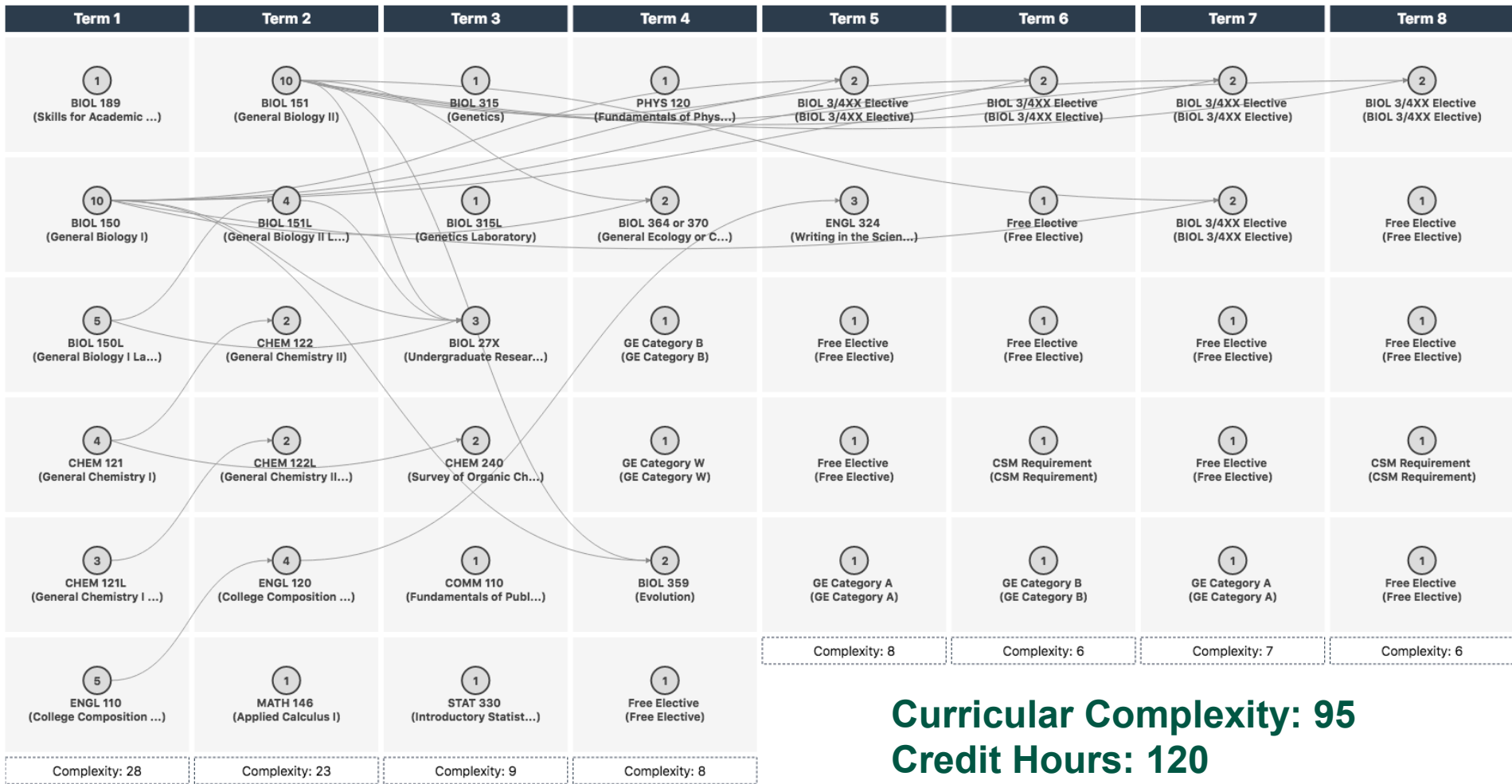
<u>BIOL 150</u> & <u>150L</u>	General Biology I and General Biology I Laboratory	4
<u>BIOL 151</u> & <u>151L</u>	General Biology II and General Biology II Laboratory	4
<u>CHEM 121</u> & <u>121L</u>	General Chemistry I and General Chemistry I Laboratory (May satisfy general education category s)	4
<u>CHEM 122</u> & <u>122L</u>	General Chemistry II and General Chemistry II Laboratory (May satisfy general education category S)	4
<u>MATH 146</u> or <u>MATH 165</u>	Applied Calculus I (May satisfy general education category R) ² Calculus I	4
<u>STAT 330</u>	Introductory Statistics	3
<u>BIOL 189</u>	Skills for Academic Success ¹	1
<u>BIOL 270</u> or <u>BIOL 271</u> or <u>BIOL 272</u> or <u>BIOL 273</u> or <u>BIOL 274</u> or <u>BIOL 275</u>	Undergraduate Research Experience: Antibiotic Discovery Undergraduate Research Experience: Field Biology and Experimental Ecology Undergraduate Research Experience: Learning in Biology Undergraduate Research Experience: Genomic Analysis Undergraduate Research Experience: Biomedical Research Analysis Undergraduate Research Experience: Insect Behavior	3

First Year

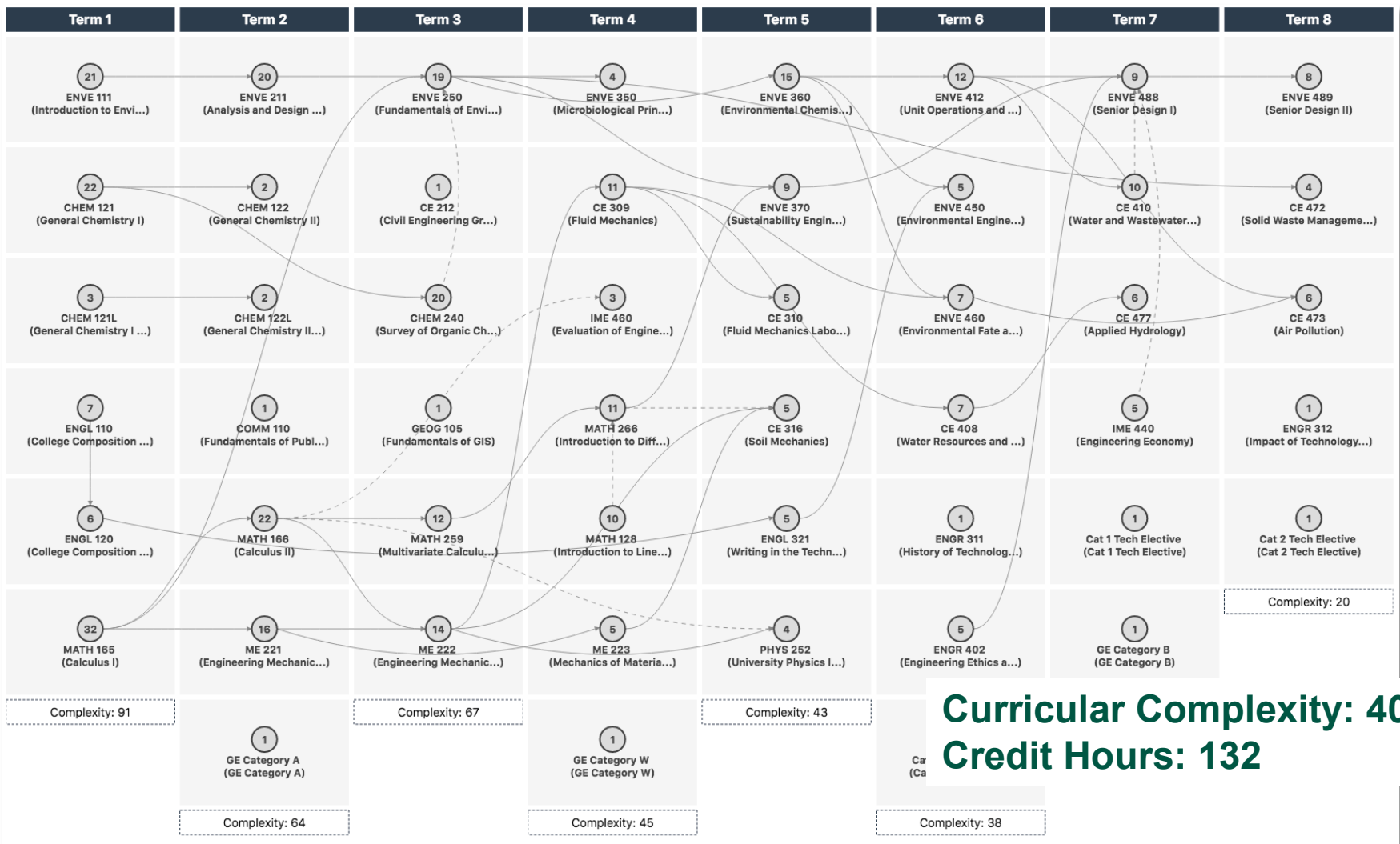
FALL	CREDITS	SPRING	CREDITS
<u>BIOL 189</u>	1	<u>BIOL 151</u> & <u>151L</u>	4
<u>BIOL 150</u> & <u>150L</u>	4	<u>CHEM 122</u> & <u>122L</u>	4
<u>CHEM 121</u> & <u>121L</u>	4	<u>ENGL 120</u>	3
<u>ENGL 110</u>	3	<u>MATH 146</u> or <u>165</u>	4
<u>MATH 103</u>	3		
	15		15

Second Year

FALL	CREDITS	SPRING	CREDITS
<u>BIOL 315</u> & <u>315L</u>	4	<u>PHYS 120</u> or <u>211</u> and <u>211L</u> and <u>212</u> and <u>212L</u>	3
<u>BIOL 270</u> , <u>271</u> , <u>272</u> , <u>273</u> , <u>274</u> , or <u>275</u>	3	<u>BIOL 364</u> or <u>370</u>	3
<u>CHEM 240</u> , <u>341</u> and <u>341L</u> , or <u>342</u> and <u>342L</u>	3-4	Social & Behavioral Sciences Gen Ed	3
<u>COMM 110</u>	3	Wellness Gen Ed	2
<u>STAT 330</u>	3	<u>BIOL 359</u>	3
		Free elective	3
	16-17		17



Curricular Complexity: 95
Credit Hours: 120

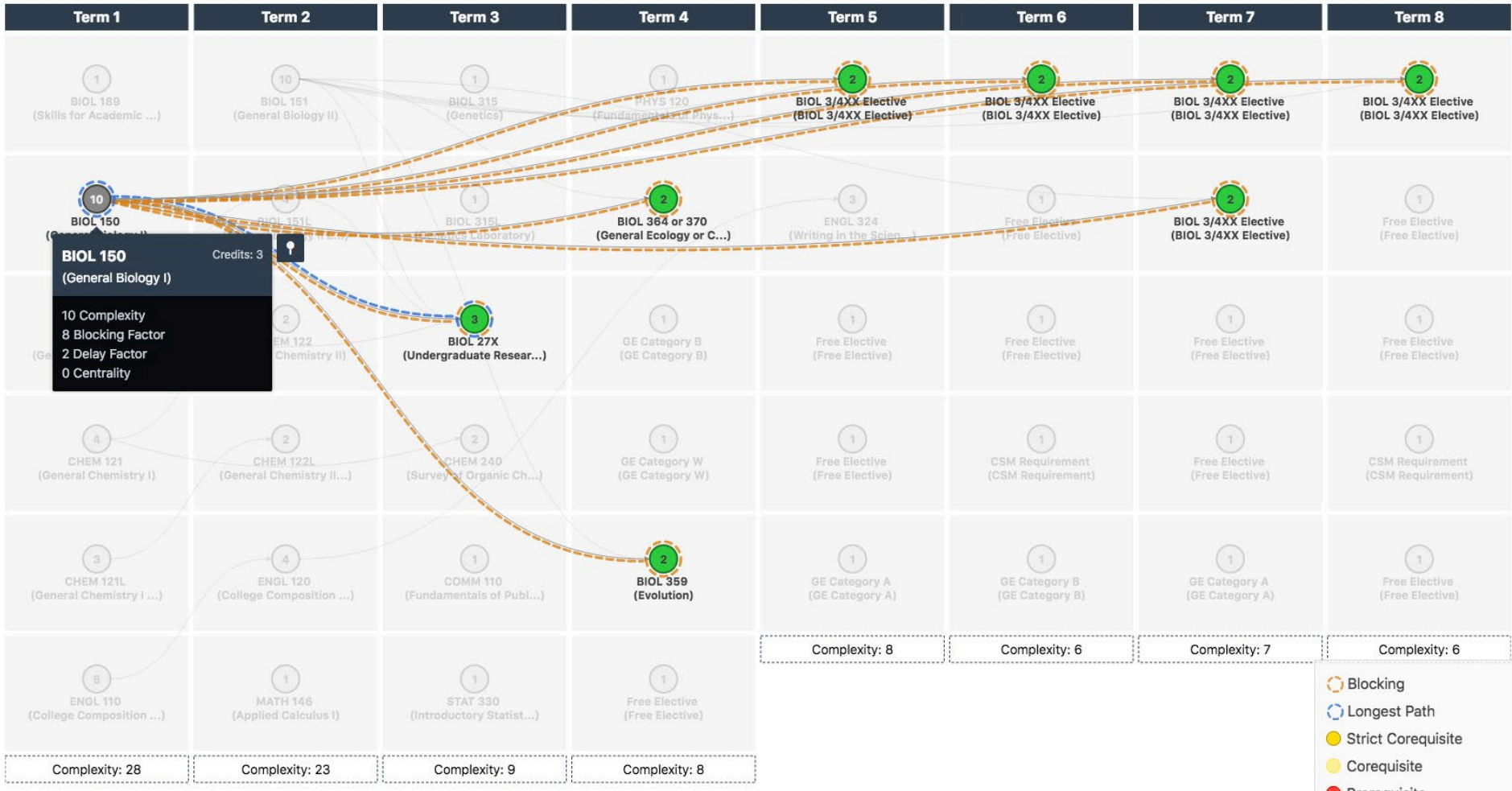


Curricular Complexity: 400
Credit Hours: 132

Comparing Complexity Scores

Institution	BIOL	PSYC	FIN	CSCI	ECON	ME
Pennsylvania State U.	103	88	117, 167*	194, 232*	84	326, 335*
U. of Illinois at Urbana-Champaign	No data	99	136	268	114	302
U. of Iowa	102	66	92	64	82	346
U. of Nebraska-Lincoln	152	56	229	165	99	381
U. of Wisconsin-Madison	114, 116, 183*	105	173	118	105	323, 388*
AVERAGE	127	83	152	174	97	343
MEDIAN	116	88	152	178	99	335

**Multiple entries. All entries used to calculate average, May 2021*



BIOL 150
 (General Biology I)

Credits: 3

10 Complexity
 8 Blocking Factor
 2 Delay Factor
 0 Centrality

- Blocking
- Longest Path
- Strict Corequisite
- Corequisite
- Prerequisite

BEST PRACTICES IN SCHEDULING

Course schedule is foundation for students' educational experiences.

Eliminating bottlenecks and conflicts can:

- improve retention
- reduce time-to-degree
- increase completions

BEST PRACTICES IN SCHEDULING

Mismanaged course schedules impede student progress.

90% of students rate being able to register for classes they need with few conflicts as 'high importance'.

40% of students feel course access is the biggest issue with their enrollment and are not satisfied.

Source: 2019 National Student Satisfaction & Priorities Report, Ruffalo Noel Levitz 2019

BEST PRACTICES IN SCHEDULING

Course Demand: Use data to inform and predict course enrollment and students' needs for courses for specific terms to ensure timely progression.

Optimization & Refinement: Create, process, & revise course schedule to meet students' needs while being a responsible steward of institutional resources.

Minimum Section Size: Adhere to minimum enrollment thresholds to more adequately prioritize resources.

PREDICTING COURSE DEMAND

Data can be leveraged to:

1. Ensure timely completion
2. Inform new curricular offerings
3. Decrease the number of under/overfilled courses
4. Take the guesswork out of course offerings per term
5. More accurately predict resources needed to provide courses

CASE STUDY: Stephen F. Austin University

- Faced a \$2.7 million budget shortfall; reluctant to spend any additional resources
- Performed a scheduling analysis on course demand
- Not meeting demand and hired 15 new full-time faculty to teach 58 additional sections
- Enabled 1770 more student enrollments (\$1,575,000)
- Reduced budget shortfall

Advising Models at NDSU

Agriculture, Food Systems and Natural Resources

- AP <26 cr. in agribusiness and economics; then assigned to faculty
- FA for other majors

Human Sciences & Education

- AP by most program areas for students <60 cr.
- HDFS/EI Ed has AP all four years
- ADHM dept all have FA
- >60 cr.: FA assigned

Science & Mathematics

- AP in BIOL (includes pre-health majors) & PSYC for students <60 cr.; then assigned to faculty
- FA for other majors

Arts, Humanities & Social Science

- AP for general advising and art, HIST ed., CJ and SOC SCI ed., Engl/Engl Ed
- AP for all Architecture, Env Design & LandARCH
- FA for other majors

Health Professions

- AP for pre-allied sciences, nursing, and pre-pharm; then assigned to faculty upon professional program acceptance

Exploratory Students

- AP exclusively
- UNIV 101 instructor is the undecided freshmen's advisor; undecided transfer students randomly assigned
- Bachelor of University Studies (BUS) degree: one designated advisor

Business

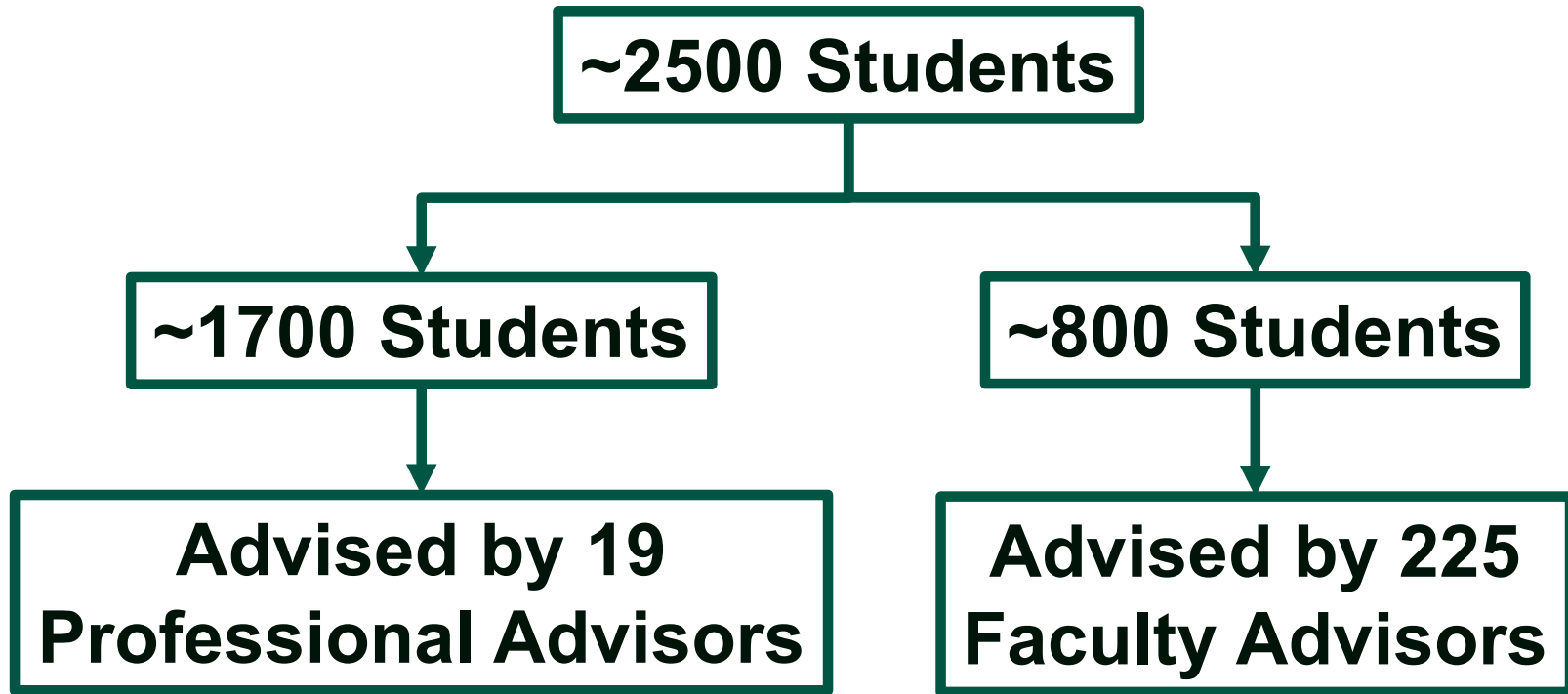
- AP all four years & FA upon professional status

Engineering

- AP for CSCI and general ENGR and those intending on ME who don't meet initial criteria
- FA for all others; some academic coordinators/assistants also assist with advising process/file management

AP= Advising Professional
FA= Faculty Advisor

FALL 2022 FIRST YEAR CLASS



GOAL

Create a structure to support a **professional advisor** utilizing a development approach for **all 1st & 2nd year students** (and 1st semester transfer students) with coordinated oversight

OPPORTUNITY: Consistent and supportive student experience

- Majority of major changes occur in 1st year
- Access to someone who understands institutional structure
- Supports ability to apply effective student success initiatives
- Allow faculty to focus on student advisees once students are stable in academic plans

OPPORTUNITY: Implement specific interactions with at-risk students

- Proactive approach for known at-risk students (Coaching, Developmental, Intrusive Advising)
 - Predictive support level
 - Conditional admits
 - Cultural Diversity Tuition Waiver Recipients
- Currently, minimal to no support/interventions for students on poor academic standing

OPPORTUNITY: Strategic re-enrollment

- Consistency in deploying a communication strategy to secure student registration term by term
- Students would transition from professional advisor to faculty advisor with a pre-determined academic plan mapping remaining degree requirements
- Devise a plan to consistently welcome back and support students coming back from voluntary and involuntary breaks from NDSU.

NEXT STEPS

Scheduling

Train faculty and staff on how to use existing tools and provide professional development on scheduling best practices.

Student Success Platform

Supports scheduling and advising initiatives through data-informed decision-making

President's Council on Retention

Implement recommendations and best practices related to:

- Academic advising
- Teaching quality
- Early intervention
- Re-enrollment campaign
- Curricular review