Planning for Distinction
Strategic Resource Allocation (SRA)

Academic-Programs Data Assembly Logic

Created by:
Jason Nicholas
Director of Institutional Research and Analysis

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Strategic Resource Allocation –Academic-Programs Data Assembly Logic

Disclosure: Please review the SRA Data Video 1 and SRA Data Video 2 before reading this document.

The following summary document serves as a general decode of the programming used to generate academic-programs data for the Strategic Resource Allocation (SRA) process. This document goes into additional levels of detail beyond the animations posted to the SRA website. It is intended for those who may be looking for a deeper explanation of the process used to create data for SRA. For additional details about how the data were created and assembled, please contact Jason Nicholas, Director of Institutional Research and Analysis (x2379).

SRA programs are reviewed at a level allowing for the potential allocation of resources. Colleges or departments are much too large for this consideration. Majors, minors, concentrations, and service programs, however, are at a level that can facilitate change. Many of the data types, like cost, faculty and staffing levels, scholarship, and credit hours, are currently at the department level. In order to generate data that support the review of SRA programs, a slightly different approach is needed.

Student credit hours (SCH) are generated as students complete classes.   In order to figure out how to roll these SCHs up into SRA programs, a common element is needed. Academic departments serve as this connection. Both the course that a student completes, as well as the major and/or minor a student declares are owned at the department level. We can use this relationship to group student credit hours into buckets and establish the SCH productivity of each academic program.

Academic Department

Courses

Majors/Minors/Concentrations
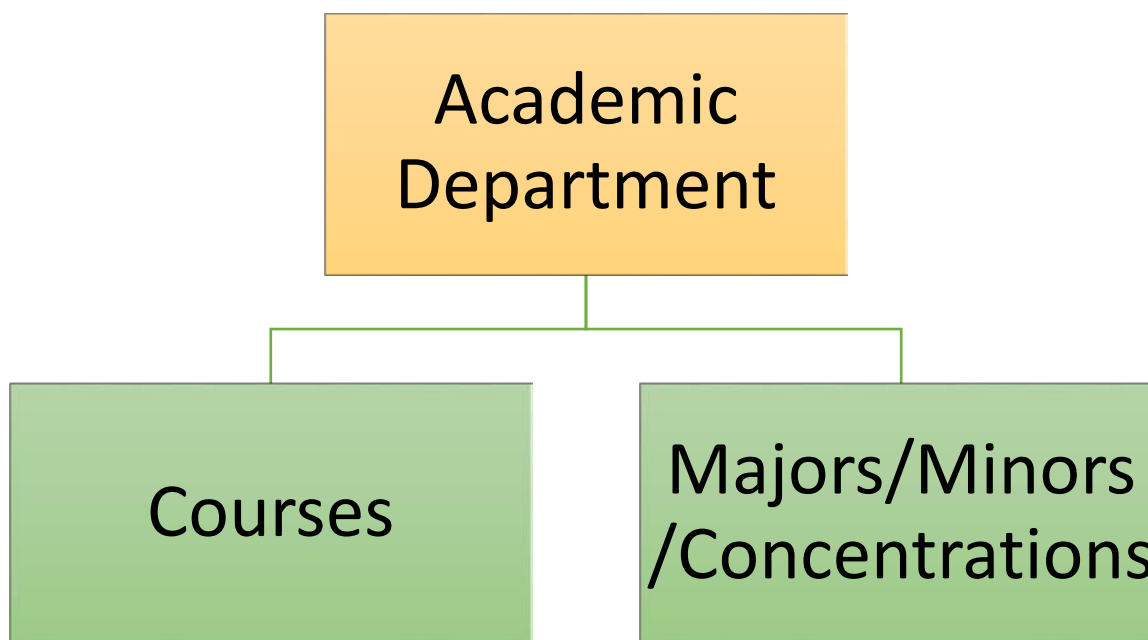
Banner-Courses Data

In order to begin to allocate department student credit hours into the appropriate SRA programs, we need to first look at a course roster. In Banner, each student on the roster has a major and a minor. Students who are undeclared are coded as "UNDE" and are listed under the department "Academic Advising". Some students also have concentrations. At a basic level, we take a look to see if the

student's major is one offered by the same department teaching the course and if it is, we put the associated credit hours into a bucket.

More specifically, the initial dataset is built using Banner-Courses data. This dataset is a listing of all instances of students sitting for courses. The base level record of this set are instances of courses that students have taken. Students show up in this dataset multiple times if they have attended more than one course in that semester (very typical).

ID	REGTERM	SUBJECT_CODE	COURSE_NUMBER	COURSE_SEQ	REGLEVL	CRSCOLL	STVCOLL_DESC	CRSDEPT	STVDEPT_DESC	COURSE_CREDIT_HOURS
456	201550	HP	91	4	VC	ED	Coll Health Sci/Prof Studies	PE	Health & Human Performance	1
456	201550	HP	91	3	VC	ED	Coll Health Sci/Prof Studies	PE	Health & Human Performance	1
864	201550	BI	201	1	PB	AS	College of Arts & Sciences	BI	Biology	3
864	201550	BI	202	1	PB	AS	College of Arts & Sciences	BI	Biology	5
864	201550	BI	202	2	PB	AS	College of Arts & Sciences	BI	Biology	0
864	201550	BI	201	2	PB	AS	College of Arts & Sciences	BI	Biology	0
864	201550	HN	210	55	PB	ED	Coll Health Sci/Prof Studies	PE	Health & Human Performance	4
864	201550	PY	100S	55	PB	AS	College of Arts & Sciences	PY	Psychology	4
287	201550	ED	989	92	GR	ED	Coll Health Sci/Prof Studies	ED	Educatn/Leadership/Public Serv	1
954	201550	HP	225A	1	PB	ED	Coll Health Sci/Prof Studies	PE	Health & Human Performance	1
224	201550	HP	91	1	PV	ED	Coll Health Sci/Prof Studies	PE	Health & Human Performance	1
224	201550	HP	91	2	PV	ED	Coll Health Sci/Prof Studies	PE	Health & Human Performance	1
604	201550	HP	91	3	PV	ED	Coll Health Sci/Prof Studies	PE	Health & Human Performance	1

Example partial view of the Banner-Courses Dataset

The dataset is reduced to only contain records from Summer 2015, Fall 2015, and Winter 2016.

Then, the courses used for students to register for graduation are eliminated. All other courses are retained.

Checks are then made to ensure that coding changes for specific majors and minors didn't happen between the 3 target semesters, and if there were changes, codes are rectified to ensure major/minor consistency across the 3 terms.

For example: Students admitted prior to, or during the Fall 2015 semester in the Biology department were listed as a number of different Biology majors (ecology, zoology, fish & wildlife, etc.). A coding change was made in between Fall 2015 and Winter 2016 and concentrations were introduced. Students added after Fall 2015 were listed as Biology majors with a particular concentration. In order to ensure that counts roll up correctly, custom code was inserted to aggregate counts from Fall 2015 correctly matching the Winter 2016 major/concentrations format.

Additional Student Information Added

At this point, additional fields are needed in the Banner-Courses dataset. Individual student records are joined with the Banner-Courses dataset to pull in fields such as major 1 and 2, minor 1 and 2, and concentration. Colleges and departments associated with the student's major, minor, and concentration codes are also added.

A recode is also done if the student's major is a pre-program and is treated as undeclared.

SCH Grouping - SRA Academic-Programs Assembly

In order to begin to aggregate program data into the SRA programs, the programs themselves must first be created. A 10-step process was created to place SCH into programs. Certain programs decided to include concentrations when creating programs. Other departments with concentrations chose not to

use them in the creation of the SRA programs. Concentration is used for many of the Associates programs as well when the student's major is GENU.

Each individual course record in the Banner-Courses dataset is run through the logic tree listed below. If the student's information matches one of the logic checks, their data are allocated into that SRA program. SRA programs are created naturally as individual student records are run through the logic.

Student Course Record Logic Tree

A program is created when:

Step 1 = For major 1, when the course department is equal to the concentration department (A&D and BIO only)

> Degree_dept_concentration

Step 2 = For GENU majors with a concentration where concentration matches the course department (Associate degree students)

> Degree_Dept_GenU_Concentration

Step 3 = For major 1, (not BIO or A&D) and in majors who have concentrations but we aren't utilizing them for SRA, and when the course department is equal to the student's major1 department

> Degree_Dept_Major

Step 4 = For major 1 (no associated concentrations available), when major1 matches the course dept.

> Degree_Dept_Major

Step 5 = For major 2, where the course department is equal to the concentration department (A&D and BIO only)

> Degree_dept_concentration

Step 6 = For major 2, (not BIO or A&D) and in majors who have concentrations but we aren't utilizing them for SRA, and when the course department is equal to the student's major 2 department

> Degree_Dept_Major

Step 7 = For major 2 (no associated concentrations available), when major 2 matches the course dept.

> Degree_Dept_Major

Step 8 = For minor 1, when minor 1 matches the course dept.

> Degree_Dept_Minor

Step 9 = For minor 2, when minor 2 matches the course dept.

> Degree_Dept_Minor

Step 10 = all remaining SCH as service for each department

> Dept_Service Course Program

The following chart is a visual example of the 10-step logic tree showing the combinations of student variables used to create the SRA programs. This chart does not display every potential SRA program type, but serves as a general representation of many of the programs.

A program such as "Bachelors_Biology_Biology_Major" appears redundant, but because the department and the major have the same name, they appear in sequence.

For a course taught by the Biology Department, the following SRA programs are created (example only):

Student	Course	Crs Dept.	Cr.	Degree	Maj_1	Maj_2	Min_1	Min_2	Concent.	SRA Program	Notes
1	BIO101	BI	4	Bachelors	BIOL				Ecology	Bachelors_Biology_Ecology_Concentration	Only used in Departments allocating by concentrations
2	BIO101	BI	4	Associates	GENU				Ecology	Associates_Biology_GenU_Ecology_Concentration	Only used in Associates Degrees where GenU is their major
3	BIO101	BI	4	Bachelors	BIOL					Bachelors_Biology_Biology_Major	Only used by departments not utilizing concentrations
4	BIO101	BI	4	Bachelors	BIOL					Bachelors_Biology_Biology_Major	Major 1
5	BIO101	BI	4	Bachelors	CHEM	BIOL			Ecology	Bachelors_Biology_Ecology_Concentration	Only used in Departments allocating by concentrations
6	BIO101	BI	4	Bachelors	CHEM	BIOL				Bachelors_Biology_Biology_Major	Only used by departments not utilizing concentrations
7	BIO101	BI	4	Bachelors	CHEM	BIOL				Bachelors_Biology_Biology_Major	Major 2
8	BIO101	BI	4	Bachelors	CHEM		BIOL			Bachelors_Biology_Biology_Minor	Minor 1
9	BIO101	BI	4	Bachelors	CHEM			BIOL		Bachelors_Biology_Biology_Minor	Minor 2
10	BIO101	BI	4	Bachelors	CHEM	PHYS	ENG	MATH		Biology_Service Course Program	No match to the department major/minor/concentrations
			40								

SRA Program SCH roll-up	Credits
Bachelors_Biology_Ecology_Concentration	8
Associates_Biology_GenU_Ecology_Concentration	4
Bachelors_Biology_Biology_Major	16
Bachelors_Biology_Biology_Minor	8
Biology_Service Course Program	4
Total Course Credits	40

Students who are undeclared (UNDE for example) and associated with the Academic Advisement department fall into the service program for the department teaching the student's course. Because Academic Advisement doesn't own any courses, all undeclared students fall through to the service programs.

Students who changed majors between Fall 2015 and Winter 2016 would have their credit hours assigned based on their coding within those terms. Whether a student changes majors or not has no bearing on the assignment of their credits. This happens on a term-by-term basis.

For example, a Biology student in Fall 2015 taking a Biology course would have their credits assigned within Biology major program. That student then changed majors to Chemistry the following semester and took a Chemistry course. That student's credit hours would be correctly assigned within a Chemistry major program the following semester.

At this point, all individual student course records in the available rosters have been assigned an appropriate program according to the course department and their declared major, minor, or concentration (when applicable). A new table is created where SCH are summed by the newly created SRA Academic-Programs creating SRA program SCH totals. The new base record is now the SRA program, not students in courses any longer. However, we can refer back to the Banner-Courses Dataset to perform counts, which supply or aid in the creation of the fields listed below.

Now we can start to add additional fields to the data table.

Dept. Allocation %: Program percent of total department SCH

Total Seats: Count of instances of students sitting for courses which contributed SCH to an SRA program

Degree: SRA program degree type (assoc., bach., masters, etc.)

Ave ACT Comp: Average ACT Comp scores of students sitting for courses which contributed SCH to an SRA program

Ave SAT Total: Average SAT total scores of students sitting for courses which contributed SCH to an SRA program

Ave HS GPA: Average high school GPAs of students sitting for courses which contributed SCH to an SRA program

Ave Transfer GPA: Average transfer GPA of students sitting for courses which contributed SCH to an SRA program

Enrollment: Headcount by SRA program broken out by individual semester as well as totaled across the 3 target semesters

Degrees Awarded: Number of degrees awarded by SRA program

Ave Degree Hrs at Grad The average number of credit hours at time of graduation

Exported Hours: Number of credit hours attended by department majors in other departments

Faculty Hours: Number of credit hours taught in the SRA program by faculty types
(NMU FA, Tenure, Contingent/Adjunct, Term, Admin, Staff)

Faculty Percent: Percent of department credit hours taught in the SRA program by
faculty types (NMU FA, Tenure, Contingent/Adjunct, Term, Admin, Staff)

Allocated Revenues, Allocated Expenses, Direct Department Revenues, and other Costs

In order to generate an SRA program's net tuition revenue, a new field must be created. Total tuition
and fees are divided by total university SCH to determine the average tuition and fees per SCH. Any
tuition and fees that can be directly allocated to a specific program, such as differential tuition and
course fees, are posted only to that program. The remaining tuition and fees are allocated to all other
programs by multiplying the average tuition and fees per SCH by the program's total SCH.

*For example, assume a single SRA program generated $36,000 of direct tuition and fees (due to a
differential tuition rate). This entire amount of direct tuition and fees is allocated to the program. If the
entire university generated $60,000,000 in net tuition and fees and there were 240,000 SCH, this would
result in an average tuition and fees per SCH of $250.00. If this program had 2,500 SCH, an additional
$625,000 in revenue would be allocated to the program (2,500 SCH x $250.00/SCH). Therefore, the total
tuition and fees allocated to the program would be $661,000 ($36,000 of direct tuition and fees and
$625,000 of allocated tuition and fees).*

At this point the final SRA Academic-programs dataset has been generated. When methods allow,
counts are cross-referenced with known Institutional Research reports to validate counts.

Once the final dataset is assembled, it is sent along with the academic report template to Qualtrics
(survey vendor). Part of the focus on quality and efficiency involves "piping" data into the template in
particular places that utilize the data. This allows for an efficient and comprehensive response to the
question. Piping in the data eliminates the need for a secondary quality check during the report review
process and eliminates the steps of keying in the data into the report by the author. Authors complete
the template as a survey in Qualtrics. Department heads or those deemed responsible for a particular
set of reports are provided a password that must be submitted at the end of the survey in order to
complete the submission process.

After all templates have been authored, the review process can begin.