

DRAFT
FOR DISCUSSION PURPOSES ONLY

DEPARTMENT OF HIGHER EDUCATION

STATE SHARE OF INSTRUCTION HANDBOOK:

***PROVIDING THE METHODOLOGY FOR ALLOCATING
STATE SHARE OF INSTRUCTION FUNDS
FOR FISCAL YEAR 2022***

FOR USE BY:

UNIVERSITY REGIONAL & MAIN CAMPUSES

REVISED: February 2022

FY 2022 SSI Funding Formula Summary

1. The primary components of the SSI formula, and their relative share of the overall allocation within each sector, are based on the original recommendations of the Ohio Higher Education Funding Commission (available at):
 - a. (<https://www.ohiohighered.org/sites/ohiohighered.org/files/uploads/financial/ssi/Ohio%20Higher%20Education%20Funding%20Commission%20-%20Report.pdf>).
2. The Fiscal Year (FY) 2022 spreadsheets are available online using the following link: <https://www.ohiohighered.org/financial> under “State Share of Instruction (SSI) Spreadsheets”.

Methodology For Allocating State Share of Instruction Fiscal Year 2022

Introduction

The purpose of this document is to provide detailed information regarding the allocation of the State Share of Instruction (SSI). Fiscal Years 2022 continues the process of using different formulas for (a) University Main & Regional Campuses, and (b) Community and Technical Colleges.

As a result, there are two separate handbooks detailing the methodology for allocating State Share of Instruction funds each sector. ***This version is designed to provide the allocation methodology for University Main & Regional Campuses. Please be careful to ensure that you are using the appropriate document.***

I. UNIVERSITY FUNDING METHODOLOGY OVERVIEW

The University funding model consists of three primary funding components:

1. Course Completions (aka Completed FTE) which comprises approximately 30% of the distribution;
2. Degree Completion which allocates 50% of the distribution; and
3. Set-Asides, if applicable
 - a. Medical model set-aside
 - b. Doctoral set-aside

The following methodology is used to determine the share of the total allocation to be distributed through each funding component of the university SSI formula.

Start with the University appropriation for the fiscal year in the parameters tab, which includes funding for both main and regional campuses. The amount available for the course completions component is determined after the following calculations are complete:

- a. Reserving 50% of the University SSI funding for a weighted degree completion component. The degree completion funding component is calculated based on data from both university main and regional campuses.
- b. Subtracting the following from the remainder:
 - Doctoral Set-Aside Allocation = 11.78% of the total annual State Share of Instruction appropriation for Universities.
 - Medical 1 Set-Aside Allocation = 1.48% of the total annual State Share of Instruction appropriation for Universities.

- Medical 2 Set-Aside Allocation = 6.41% of the total annual State Share of Instruction appropriation for Universities.
- c. The remaining university SSI funding shall be allocated through the course completion component of the SSI formula.

II. DETERMINING THE COST OF COURSES AND DEGREES

Because both the course completions and the degree attainment components of the formula have a cost basis, the determination of these costs is explained first.

Below are the steps used to calculate the model costs for courses and degrees.

Step One: Collect Resource Analysis Cost for Each Subsidy Model

Collect Resource Analysis Data to Develop the Statewide Average Model Cost for Each Subsidy Model

The Department of Higher Education collects cost and enrollment data from each of the campuses (all sectors). These data include a course level and subject code for each course which are used in combination to categorize courses into subsidy models based on cost and content. Each course is assigned to one of 26 cost models based on subject area and level of instruction:

- Arts & Humanities (1-6)
- Business, Education and Social Sciences (1-7)
- Science, Technology, Engineering, Math and Medical (1-9)
- Doctoral (1-2)
- Medical (1-2)

The cost and enrollment data are used to determine the average cost per FTE for each Subsidy Model for the most recent 3 years available prior to running the SSI formula for the first year of the target biennium. In determining the average cost for the Fiscal Year 2022 and FY 2023 biennium, the calculation is based on data for Fiscal Years 2017, 2018, and 2019. The cost allocation is done in the Resource Analysis process described at <http://regents.ohio.gov/hei/RA/RAspecifications.html>

Normalize each year's cost by inflating with the Higher Education Cost Adjustment (HECA)

Above, an average cost for instruction for each model was calculated using three years (Fiscal Years 2017, 2018, and 2019) of costs from Resource Analysis. In order to make these costs comparable, it is necessary to inflate each of the prior years of Resource Analysis cost data to reflect Fiscal Year 2019 costs (the last year of actual data) using the Higher Education Cost Adjustment (HECA).¹

The statewide average costs for each model for the biennium are located in the **SSI university spreadsheets** in the tab called '*Model Cost (courses)*'.

¹ For a description of the derivation of HECA, please see the SHEEO technical paper: https://sheeo.org/wp-content/uploads/2019/04/Technical_Paper_A_HECA_1.pdf

Add Higher Education Funding Commission Priority Weightings for Science, Technology, Engineering, Mathematics, Medicine, and Graduate Courses by model

The Higher Education Funding Commission endorsed a priority weighting for STEM² and graduate models.²

The STEM² weighting was calculated in a manner that held STEM² and Medical models harmless relative to the amount of state support the same instruction earned in the previous SSI formula, using FY 2007 as the base year. In cases where this addition is negative, it is set to zero (i.e. it never reduces the SSI of a model).

The graduate weights (used by University Main and Regional campuses) were implemented to ensure that the relative amount of state support for graduate and undergraduate activity under the new funding model remains comparable to the earnings that utilized the enrollment model, using FY 2009 as the base year.

The STEM² and graduate model priority weightings are multiplied by the respective model cost for each of the 26 models. The resulting calculation is called the Model Reimbursement Cost and can be viewed in the **SSI university spreadsheets** in the tab called '*Model Cost (courses)*'.

Determine the Statewide Average Degree Costs

The cost of each degree is calculated using the statewide average cost of the SSI model for each course taken, adjusted, weighted, and inflated to the appropriate year as above. The costs of all courses taken at any University System of Ohio (USO) campus, through the year and term the degree is awarded, by students who met the following criteria are included in these calculations.

For FY 2022-FY 2023 degree costs, a query of HEI data is used to select degrees earned in FY 2017, FY 2018 or FY 2019 for which there is evidence that all instruction for the degree was earned on a USO campus. (Note: A student's coursework needs to be completed within the time frame of the HEI system's existence (i.e. FY 1999 and later), to be included in the calculation.) In other words, the procedure compares the credit hours earned of each degree recipient to the minimum credits required for the degree at each institution (as reported in the Academic Program file in HEI) to determine whether that degree should be included in the calculation of degree costs. Barring a few special exceptions, undergraduate enrollments do not count for graduate degrees and vice versa. Also, for graduate degrees, the course must be taken at the degree granting institution.

Once the cost of all degrees earned in a given subject and level is calculated then the degrees are aggregated as shown below. A statewide average degree cost is then calculated for each level of the aggregation.

The statewide average degree cost is calculated by level. Different levels have different aggregation categories. Associate degrees are grouped into the various technical areas, plus Liberal Arts as follows:

² Ohio 127th General Assembly, Main Operating Budget H.B. 119, SECTION 375.30.20.(C) State Share of Instruction.

Technology Areas for Associate Degrees; Subject and Discipline Levels for Bachelor's Degrees and Above

Technology Areas	Discipline Areas	Subject Fields
Business Technologies	Business	
Engineering Technologies	Engineering	
Health Technologies	Health	
Public Service Technologies		Public Administration and Services
		Protective Services
Agriculture Technologies		Agriculture
Natural Science Technologies	Natural Science and Math	Exclude Agriculture
Liberal Arts	Arts & Humanities	
	Education	
	Social and Behavioral Sciences	Exclude Public Administration and Services
Other	Unclassified	Exclude Protective Services

Bachelor's, master's and professional degrees are grouped by Subject Field (based on the CIP code as reported in the DC file).

Doctoral degrees are grouped by Discipline Area (which is broader than Subject Field), because there are too few degrees in some Subject Fields.

The category into which a degree falls is determined by the level and the subject code (or CIP code) under which it is reported by the institution in the Degrees and Certificates Awarded (DC) file.

The costs (sum of costs of courses taken) of all degrees earned in the given technology area, subject field, or discipline (as appropriate given the degree level) are averaged to determine the statewide average cost for all degrees fall into that category. These degree costs can be viewed in the **SSI university spreadsheets** in the tab called 'degree cost'.

III. COURSE COMPLETION COMPONENT OF THE FORMULA

Below are the steps used to calculate the course completion component of the funding methodology:

Collect Subsidy Eligible Completed FTEs and at-risk completed FTEs and calculate the 3-year averages

For FY 2022, FTEs from FY 2018, FY 2019, and FY 2020 were used. The Department of Higher Education provides a summary of the subsidy course completions (completed FTE) by Subject and Level for the 3-years ending in the year preceding the year for which SSI is being calculated. The source for the FTE data

comes from the HEI system and can be viewed in the **SSI university spreadsheets** in the tab called 'subj Level'.

A subsidy FTE is defined as 30 semester credit hours. Medical, Veterinary Medicine, and Dental Health FTE are based on student enrollments and are not included in the general FTE, but in the Med set-asides. Please note that high school students and credits earned at the college while students are in high school are included in the formula unless the course or the student is marked ineligible for one of the reasons shown here: <https://www.ohiohighered.org/node/1872>

The most recent three-year averages of subsidy eligible completed FTE and at-risk subsidy eligible completed FTE counts are generated for each eligible combination of institution, subject field, and level of instruction.

The completed FTEs, at-risk FTEs, and resulting average calculations can be viewed in the **SSI university spreadsheets** in the tab called 'subj Level'.

Students are at-risk for course completions if they have either or both of the following characteristics:

- **Financial:** EFC < \$2190, based on FAFSA application data;
- **Academic:** ACT score of less than 17 in either Math or English or completion of developmental course work at any public college or university for students with no ACT scores.

Any course completed (FTE) by an at-risk student is considered at-risk and that FTE is included in the at-risk add-on as described below.

At-Risk Students are given additional weighted FTEs based upon the difference in completion rates for at-risk students compared to the course completion rates for students who are determined to not be at-risk. For FY 2022, FTE at-risk weights were calculated from FY 2018, FY 2019, and FY 2020 enrollment data. The at-risk FTEs are multiplied by two factors, a model specific weight and an institution specific index to determine the weighted at-risk FTE.

For the calculation of the model specific, statewide, weight, students are considered at-risk if they have one or both of the above characteristics. Students are placed into one of 4 categories: Not at risk, financial risk only, academic risk only, or academically and financially at risk. The at-risk course completion weight is calculated as the difference between course completion rates for non-at-risk undergraduate students versus the course completion rates for at-risk undergraduate students. This weight is statewide (not institution specific) but is calculated by model; so, for example, the weight for engineering courses might be different than that for English courses.

The at-risk course completion institution index is institution specific and it captures the magnitude of the "at-risk" student population at each institution in all of the combinations of the various risk categories. This takes into account the number of students in each risk category as well as how at-risk the students in that category are.

The at-risk weights and indexes are calculated in the *SSI university spreadsheets* in the tab called 'enroll at risk'.

At-Risk Course Completions add-on FTE =

(3-year average At-Risk Completed FTEs (from Step One))

*

(Statewide Average Course Completion At-Risk Weights by model)

*

(At-Risk Course Completion Index (by institution))

This is calculated in the *SSI university spreadsheets* in the tab called 'subj Level'.

Calculate Course Completions SSI by Institution, Subject Field, and Level of Instruction

The amount of the SSI appropriation that is allocated to course completions (as determined in section I above) is prorated to each combination of institution, subject, and level. First the 3-year average completed FTE for each combination is multiplied by the appropriate model cost (calculated as described above) to determine the reimbursement cost for each combination. Then these reimbursement costs are summed to calculate a total reimbursement cost for the sector. Next, this is done for the at-risk add-on FTE. The ratio of the reimbursement cost calculated for each institution, subject, and level to the total reimbursement cost for the sector is multiplied by the course completion allocation to determine the SSI distributed for that institution, subject, level combination. These steps are repeated for the at-risk add-on FTE. The sector total used for the ratio is the sum of the reimbursement costs for completed FTE and for the at-risk add-on FTE.

This calculation can be seen in the *SSI university spreadsheets* in the 'subject level' tab. The share of the appropriation being prorated and the total reimbursement costs for the sector are seen at the bottom of the columns.

Starting in FY 2015, the weighted course completion funding component is allocated by institution - across both university sectors (university main and regional campuses) with a single appropriation, reimbursement costs, and SSI allocations.

The 'Summary' tab in the *SSI university spreadsheets* sums the course completion SSI distributions by institution to show the total amount each institution earned from course completions and at-risk course completions.

IV. Degree Completion Component of the Formula

This section provides the methodology for allocating the degree completion component of the SSI formula, as shown in Section I (50% of the appropriation in FYs 2022 and 2023).

Per the Higher Education Funding Commission's recommendation, the following degrees shall contribute to the degree counts in the degree completion model:

- Associate degree completion at any university regional or main campus shall be eligible for degree completion funding;
- Baccalaureate degrees; and
- Masters and Professional degrees, excluding Medical 1 and Medical 2 degrees.

Starting in FY 2014 and continuing in this biennium, subsidy eligible degrees shall be adjusted as follows:

- The degrees conferred to students identified as residents of the state of Ohio in any term of their studies, as reported through the Higher Education Information (HEI) system student enrollment file, shall be weighted by a factor of 1.
- The undergraduate degrees conferred to students identified as out-of-state residents during all terms of their studies, as reported through the Higher Education Information (HEI) system student enrollment file, who remain in the state of Ohio one year after graduation shall be weighted by a factor of 50 per cent. In order to avoid unnecessary delay in awarding SSI for degrees earned, it was agreed that an institutional 'stay in state' rate would be determined and used as a proxy for knowing which individual graduates remained in Ohio. This can be seen in the **SSI university spreadsheets** in the '*Institutional Out-of-State Rate*' tab.

Determine the number of degree credits earned by each University

First, data on all degrees earned at each institution in each level and subject (or discipline for doctoral degrees as explained in section II above) is collected. This includes Associate's, Bachelor's, Master's, and Professional degrees (excepting Medical degrees) awarded at all university main and regional campuses. If a student earns more than one degree at the same level, in the same year, the most costly of those degrees is included wholly and all others at that level, earned in that year are weighted at .25. For FY 2022, degree attainment is measured by the three-year average of the degree credits associated with degrees awarded in FY 2018, FY 2019, and FY 2020.

Because there are no data in HEI that explicitly relate courses to degrees, the formula converts all credit hours to semester hours and calculates and sums the cost of all college level course credits earned in a USO university (main or regional campus) earned by each graduate as long as they meet these criteria:

- 1) The credit hours were earned since the last degree at that same level was earned;
- 2) The credit hours were earned in the same term as the degree or earlier;
- 3) The credit hours are reported as completed in the course enrollments (CN) file;
- 4) In general, undergraduate credit hours do not count toward graduate degrees, although there will be some exceptions to this rule. For example, University of Cincinnati Pharmacy students receive a graduate degree but there is no terminal Bachelor's degree as part of the program and so most are never reported as graduate students. Undergraduate credit hours (those taken as an undergraduate) apply to these degrees.

The fraction of the degree or degree credit used for each contributing institution is:

Cost of credit hours earned at the individual institution divided by the cost of total credit hours earned at all USO institutions or statewide average degree cost – whichever is higher.

If the cost of a given degree is less than the statewide average cost, the remainder of the cost between the cost of total credit hours earned at all USO university campuses and the Statewide Average Cost of the Degree, if any, is converted to degree credits and is awarded to the degree granting institution as a bonus. For example if the cost of a degree including all credits in the IUC is \$90,000 and the statewide average cost is \$100,000, then 0.9 degree credits would be awarded based on the cost of credits earned in the system and the degree granting institution would get a 'bonus' of 0.1 degree credits for that degree. Starting in FY 2016, the bonus is capped at 0.125 for degrees earned by students who transferred in more than twelve credit hours.

If the cost of the degree was greater than the statewide average cost for that degree, there is no bonus. Also, no bonus is applied if a previous degree at the same level has been earned.

Starting with the FY 2016 SSI, there are also adjustments made for multiple degrees earned. If an associate's degree is earned and then a bachelor's degree is earned, the hours that counted toward the associate's degree do not count toward the bachelor's degree. If the bachelor's degree is more costly than the associate's degree, then the difference in costs is credited to the bachelor's degree. If the associate's degree is higher cost (this would be rare) then the bachelor's degree credits include only the courses taken between the associate's degree and the bachelor's degree. Also, previously, if two degrees at the same level were earned in the same FY, the more costly was included and the other(s) were dropped. Now, in that situation, the most costly is weighted at 1 and any other(s) at .25.

For degrees including credits earned at multiple institutions, degree attainment funding shall be allocated to universities in proportion to each campus's share of the student-specific cost of earned credits for the degree. Each institution shall receive its prorated share of degree funding for credits earned at that institution. Cost of credits not earned at a university main or regional campus shall be credited to the degree-granting institution for the first degree earned by a student at each degree level. The cost credited to the degree-granting institution shall not be eligible for at-risk weights and shall be limited to 12.5 per cent of the student-specific degree costs. However, the 12.5 per cent limitation shall not apply if the student transferred 12 or fewer credits into the degree granting institution.

The resulting degree credits are in the **SSI university spreadsheets** in the tab called '*degrees*'.

Determine which Degree Credits are Eligible for At-Risk Funding for each at-risk category.

At-risk degree credits are defined as those from above that were earned by students with any of the following characteristics:

- **Age:** The student was over 22 when they began college. This calculation uses the difference between the year first enrolled in any USO institution and year of birth as full birth dates are not available for all students.
- **Financial:** The student had an EFC of less than \$2,190 in any of the years prior to degree attainment.
- **Academic:** The student scored less than 17 on the ACT Exam in either Math or English OR, if no ACT data is available, the student completed any Developmental course on any USO campus at any time before the degree was awarded.
- **Race:** If the student was reported as African American, American Indian, or Hispanic from the Student Entrance table with the same admission area as the corresponding DC record.
- **First Generation Status:** This is determined by using the student's first FAFSA application based on the highest grade level of the parents being High School or less.

At-risk degree credits are identified in the selection of degrees for SSI process. Degree credits earned through the 'bonus' rather than through courses earned at that institution are not included in the at-risk add on for degree credits. The resulting degree credits are in the **SSI university spreadsheets** in the tab called 'degrees'.

Calculate the Statewide At-risk weights for undergraduate degrees earned.

Each student (and therefore degree credit) is placed into one of 32 categories based on which of these risk factors they have, ranging from students with none of these risk factors to students with all five risk factors.

The at-risk weights for undergraduate degrees are designed to reflect the decreased likelihood of students graduating based on whether or not they are at-risk. For FY 2022, these at-risk weights were calculated using cohorts of full-time degree seeking students who started at a USO regional or main campus in the summer or autumn of FY 2012, FY 2013, FY 2014 or FY 2015. The bachelor's degree attainment rate of students in each at-risk category was compared to that of students who were not at-risk to determine the weight for each category.

The calculation of the at-risk degree weights, as well as institution level data, is available in the **SSI university spreadsheets** in the tab called 'degree index'.

Calculate the degree credit costs and weighted degree credit costs for each university by degree categories and prorate the SSI based on this weighted degree credit cost.

Degree credit counts are separated into 2 categories: resident (in-state) and non-resident (out-of-state). Within each of these there are overall degree credits and at-risk degree credits (the at-risk degree credits are really a subset of the overall credits and are used as add-ons in the formula).

The appropriation for degree completions is prorated to each combination of institution, subject, and level by the ratio of cost of the degree credits in this category to the total cost of all degree credits. The cost of out-of-state undergraduate degree credits is only included if they stay in Ohio one year after graduation (i.e. are enrolled in a state college or university or are found to be employed in the state). Degrees earned by out-of-state students who do remain in Ohio are funded at 50% of the degree cost. In order to avoid a delay in funding out of state degrees, an institution specific 'rate of stay' is used to determine what percentage of out of state degree credits should be included. The rate is based on the percentage of their out of state undergraduate graduates who remained in the state and were employed (according to ODJFS records) &/or pursuing more education at a USO institution. This rate uses the most recent 3 years' worth of graduates for whom ODJFS data are available. This can be found in the **SSI university spreadsheets** in the tab called '*Institutional Out-of-State Rate*'.

The sector total used for the ratio is the sum of the costs for degrees overall and the costs of at-risk degrees.

The results of the calculation of SSI for degree credits can be seen in the **SSI university spreadsheets** in the '*degrees*' tab.

V. The Doctoral Set Aside and Medical Set-Asides

- a. Allocate 25% of the doctoral set-aside funds based on the cost of FTE course completions from the most recent three years of data.
- b. Allocate 50% of the doctoral set aside funds based on weighted cost of doctoral degrees.
- c. Allocate 25% of the doctoral set aside funds based upon their respective shares of the most current NSF expenditure data available (with the grants awards from the Department of Health and Human Services weighted at 50%).
- d. The entire Medical I set-aside is allocated to OSU.
- e. The Medical 2 set-aside is allocated amongst the institutions that have medical schools based on their FTE shares.

Calculate the FTE component of the Doctoral Set Aside for each institution with doctoral instruction.

Calculate the doctoral set aside for each institution with doctoral instruction. The FTE portion of each institution's doctoral set aside is based on course completions from the most recent three years.

The doctoral FTE share calculation can be seen in the **SSI university spreadsheets** in the tab called 'Doc Set Aside'.

Calculate the Degree and Research components of the Doctoral Set Aside for each institution with doctoral instruction.

Allocate 50% of the doctoral set aside funds based on weighted cost of doctoral degrees. This is based on degrees awarded at the institution, not degree credits (i.e. proportional degrees are not used here). The costs of the degrees are determined as described above in Section II.

Allocate 25% of the remaining doctoral set aside funds based upon each institution's respective shares of the most current NSF expenditure data available (with the Health and Human Services (including NIH) grants weighted by 50%). The research expenditures can be seen in the tab called 'Research' in the **SSI university spreadsheets**.

The doctoral degrees and research shares calculation can be seen in the **SSI university spreadsheets** 'Doc Set Aside' tab.

Allocate Medical I and Medical II Model Funding

The Ohio State University is the only University to have Medical I programs; therefore, the entire Medical I funding model is allocated to Ohio State. Med 1 programs include doctoral/professional level dentistry and veterinary.

The Medical II model funding is allocated based on a 3-year average eligible FTE. The FTE is determined by counting enrollments of professional level medical students since medical course enrollments are not reported through HEI. Each professional level medical student enrolled in a given term is assumed to be full time that term so that a student enrolled 2 semesters would count as one annual FTE. These FTE are not multiplied by costs. This calculation can be seen in the 'med 2' tab of the **SSI university spreadsheets**.

VI: SUMMARIES

Other tabs in the SSI spreadsheet gather and summarize the values calculated as described above. The 'Summary' tab of the **SSI university spreadsheets** shows the amount of SSI each institution will receive from each component (completed FTE, degrees, Doc and Med set-asides, and earmarks) based on those calculations. This tab also compares the overall total current year values to the totals from the previous SSI year. The 'output' tab of the **SSI university spreadsheets** provides a simple summary of the totals by

institution and compares the current year totals to the previous year totals. It also shows the percentage of SSI each institution received by component (completed FTE, degrees, and total) or each institution's share of the funding for FTE, degrees, and overall. Note: In some cases these numbers may not seem to make sense (for example if the share of FTE and share of degrees are both less than the share of total) but this is because the set asides and earmarks are not included in the shares. The first tab in the ***SSI university spreadsheets*** , called '*parameters*', shows the total SSI appropriation and the amounts for the Doc and Med set asides. This information is used extensively throughout the SSI calculations.

VII. APPLY THE CAPITAL DEDUCTION FOR EACH INSTITUTION PRIOR TO DISTRIBUTING THE STATE SHARE OF INSTRUCTION ALLOCATION

This step of the calculation reduces the State Share of Instruction allocation for institutions that have negative adjustments that are the result of the implementation of the ODHE incentive-based capital funding policy. As part of this policy, institutions with debt service costs (for qualifying capital projects) that exceed their formula-determined capital allocation have that difference deducted from their State Share of Instruction allocation. Pursuant to the recommendations of the SSI Consultation and the Higher Education Funding Commission, funds from this capital deduction are to be transferred to the Capital Component line item. This transfer allows the Capital Component to be fully funded. This is not shown in the ***SSI university spreadsheets*** , but does affect the actual distributions.