

Data Validation and Reporting Tool (MS Access)

MIS AY 2016-2017 Annual Data

INTRODUCTION

A Data validation tool was created to streamline annual data submissions from Iowa community colleges to the Iowa Department of Education. The tool provides all needed elements for the colleges to load the data, validate its format, scope and logic, and create a file in the expected format for the data submission to the DE. By providing this tool, the DE expects significant reduction of data processing time both for colleges and the DE, simultaneously with significantly improved reported data quality.

The tool contains all needed *reference tables*, updated to the latest available data at the time of publication. The built-in reference tables can be accessed via green command buttons located directly at Main Navigation Form. The Main Navigation Form contains blue command buttons, connected to *five stages of process*: IMPORT DATA, VALIDATE DATA FORMAT, VALIDATE RELATIONAL LOGIC, VIEW OR EXPORT CONFIRMATION REPORTS, and EXPORT DATA. Additionally it contains a link to a *video tutorial*, as well a link to the latest *MIS reporting manual*.

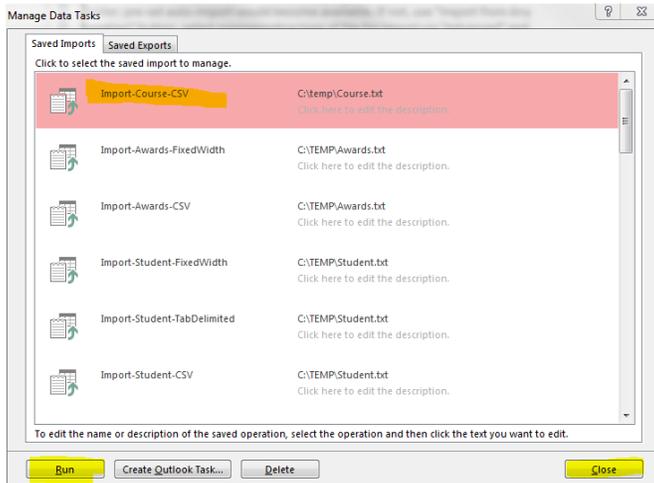
Part I: Import Data/Stage 1 of validation.

What Stage 1 does:

- Checks for expected number of data elements;
 - Checks for expected length of each data element;
 - Trims (removes redundant spaces) every cell;
 - Checks for expected data format.
1. Create directory named "Temp" directly in the root directory of C:\ drive.
 2. Create 10 files based on MIS Reporting Manual AY 2016-2017 requirements and title them only as indicated here: "Awards" (for credit awards file), "Student" (for credit student information file), "Course" (for credit student course file), "CreditCatalog" (for credit course catalog file), "NCCourse" (for non-credit course file), "NCStudent" (for non-credit student course file), "NCCatalog" (for non-credit catalog file), "NCAwards" (for non-credit awards file), "Employee" (for Employee file) and "Position" (for positions file). Your files should not contain any titles, and can be saved in one of the three text formats of your choice: ASCII fixed width, tab delimited, or comma separated. Regardless of the selected text format, your files must have extension .txt. Place all files in C:\Temp directory. You may work with one file at a time only through the first and second stages of data validation.
 3. Import a corresponding data file by using "Import Data From C:/Temp folder with stored procedures" button:
 - a. Click on the Button and navigate to a desired stored procedure, e.g., "Import-Course-CSV" (for comma separated text file containing credit course data). Upon selecting a desired pre-set, click "Run" button as on the screenshot below and import corresponding file. Your initial validation tool contains stored "dummy" files, so you will receive an "Overwrite existing table..." warning. Click "yes" to agree. If you have formatted your initial file correctly, a success message will notify you that "All objects were imported successfully".

Click “Yes” to proceed. Congratulations! You have passed the first stage of data validation: reporting format validation.

Repeat the procedure for all ten files.



b. If your file contains formatting problems, it will not import correctly, and you will receive an error message: “Not all of your data was successfully imported...” Click “OK” button to proceed.

c. Use “Close” button to leave Saved Imports menu. From the Import Data page, select “View [corresponding file] Import Errors”. The Error Table will show type of error (e.g., “Type conversion”), Field of error (e.g.,

“CourseStart”) and Row of error (e.g., 1). Upon examining the scope and the essence of error, you should close the report by clicking on “x” in its upper right corner.

d. If you are done with the error analysis, click on red text “Delete [file name] ImportErrors” button. After that, you may either examine the file containing errors (click on “Open [file name] for visual assessment/possible corrections), or repeat steps 1-3, first fixing determined error in the original file(s). If you decided to Open the deficient file, you may fix the error manually directly within the tool, and skip the new import process.

DO NOT LEAVE ANY IMPORT ERRORS UNATTENDED: YOU WOULD EITHER BE STOPPED DURING SUBSEQUENT DATA VALIDATION STAGES OR YOUR FILE WOULD BE RETURNED BACK FROM DE

If storing under C:\Temp is not possible, use "Import from Any Location" button, select corresponding type of file for import via "Advanced" and "Specs" button, and remember to NOT ASSIGN PRIMARY KEY--or trimming will not work. If no errors are received, proceed to the next step; otherwise, analyze/correct errors as described above.

Part II: Data Element formatting validation/Stage 2 of validation.

What Stage 2 does:

- Checks acceptable scope of the data, by individual data elements (e.g., no SSN can start with “000”, etc.)
- Checks basic intra-file relational logic (e.g., between CIP and Type of Program code, etc.)

Successfully importing your files brings you on the next level of data validation: data element validation. Click on the green “Back to Main” button to navigate to the main page, and then click on “Validate Data Format” button. This stage might generate two types of errors: “critical” and “warning”. Since this stage examines every data element within every record, reporting errors is practical only in the aggregate. Not reporting them collectively will call for a separate report for each instance of critical or non-critical error in each record and each data element, making the validation process counter-productive.

CRITICAL ERROR (“X”): The data element reported in the record is not acceptable (e.g., an SSN containing three starting zeros). Critical errors must be eliminated before further processing is attempted.

WARNING (“W”): The data element reported in the record is acceptable, but the data contains unusual format and/or characters (e.g., a last name with dots, quotation marks, etc.). Upon examination, the reviewer may either correct the data or verify legitimacy and proceed without corrections.

1. This section of validation contains 10 buttons with the names of each of your files. Click a corresponding button to start your files’ validation.
2. If the file contains no critical errors and no warnings, an approving message (“Passed: [file name] data formatted correctly”) will appear. Click OK and proceed to the next file.
3. If there is at least one warning or critical error, the record containing that error(s) will be displayed side-by-side with the field containing “_V” as the end of the title, and displaying the type of error for a preceding field. Locate the erroneously reported data by examining all data elements of the record(s): any time a validation record contains “X” or “W”, there is a critical error or warning, correspondingly. Examine the error and do one of the following:
 - a. “X” – correct the record by fixing a deficient data in a cell directly in displayed cell. The changes will be save automatically to your stored file; if data corrected according to acceptable parameters, the “X” will change into “V” (“passed”).
 “W” – examine the warning, and either fix the data, or verify its legitimacy and leave as is. If fixed, the “W” will change into “V”.
 - b. If the scope of critical error or warning to be fixed is impractical for manual correction, stop the validation (click “x” in the upper right corner to close displayed list of errors), fix errors programmatically in your original file, and re-run all preceding steps, beginning with Part I.

Note: a record might contain one or more errors/warnings. Please examine a complete record.

DO NOT LEAVE ANY “X”- type ERRORS UNATTENDED: YOU WOULD EITHER BE STOPPED DURING SUBSEQUENT DATA VALIDATION STAGES OR YOUR FILE WOULD BE RETURNED BACK FROM DE. CAREFULLY EXAMINE “W”-flagged DATA: BY PROCEEDING WITHOUT CHANGES YOU CONFIRM THAT THE DATA IS VALID.

Part II: Data Element formatting validation/Stage 2 of validation: description of validations

1. Credit Course File

Data Element Title	Data Element Description	Validation	Type of error
CommCollege	Number assigned to a Community College	Blanks and NULLs not accepted; only range 01-16 as text is accepted (except 08)	X

SSN	Student's SSN	No Blanks and no NULLs, only 9 numeric characters, no number starts with "9" except for "999999999"; no number starts with 000; no number ends with 0000; neither first, no last group of numbers contains three identical characters in SSN structure "XXX-XX-XXX".	X
ID	Locally assigned student ID	Only 9 characters; only numeric characters; no spaces; no blanks or NULLs.	X
Regtype	Type of Registration	No NULLs or blanks; Range 0-2.	X
HSEnrollType	High School Type of Enrollment	No NULLs or blanks; Range 0-3.	X
Residency	Student's residency	No NULLs or blanks; Range 1-3 = "V"; "0" = "W".	X, W
CIP	Program CIP number	No NULLs or blanks; only 10 numeric characters; range 0100000000-5999999900.	X
InstLevel	Instructional Level	No NULLs or blanks; "03" is the only acceptable value.	X
TypeProgram	Type of Program	No NULLs or blanks; range 02-13 or 32	X
SpEmphasis	Special Emphasis	No NULLs or blanks; accepted values are "11", "09", "04", "35".	X
ObjPurpose	Object and Purpose	No NULLs or blanks; "03" is the only acceptable value.	X
Course	Common Course Number	No NULLs or blanks; first 3 characters are only alpha (no special characters), last three characters only numeric.	X
CourseStart	Course Start Date	No NULLs or blanks; range 1/1/2000-1/1/2020	X
CourseEnd	Course End Date	No NULLs or blanks; range 1/1/2000-1/1/2020	X
DateEntered	Date Course was started by student	No NULLs or blanks; range 1/1/2000-1/1/2020	X
DateExited	Date Course was Ended by student	No NULLs or blanks; range 1/1/2000-1/1/2020	X
CourseCreditHr	Number of credit hours assigned to a course	No NULLs or blanks; range 0--99.99	X
DistanceLearn	Distance Learning flag	No NULLs or blanks; Range 0-2.	X

DevlCourse	Developmental Course flag	No NULLs or blanks; acceptable values "0" or "1"	X
ContactHrs	Course Contact Hours	No NULLs or blanks; range 0--999.99	X
Instr1	SSN of Primary Instructor of Record	No Blanks and no NULLs, only 9 numeric characters, no number starts with "9" except for "999999999"("W"); no number starts with 000; no number ends with 0000; neither first, no last group of numbers contains three identical characters in SSN structure "XXX-XX-XXX".	W, X
Instr1Percent	Percent of the course time taught by Primary Instructor of Record	No Blanks and no NULLs; numeric values range "001"-"100"	X
Instr2	SSN of Secondary Instructor of Record	No Blanks and no NULLs, only 9 numeric characters, no number starts with "9" except for "999999999"("W"); no number starts with "000" except complete string "000000000"; no number ends with 0000 except complete string "000000000"; neither first, no last group of numbers contains three identical characters in SSN structure "XXX-XX-XXX".	W, X
Instr2Percent	Percent of the course time taught by Secondary Instructor of Record	No Blanks and no NULLs; numeric values range "001"-"100"	X
Earnedhrs	Earned Credit Hours	No NULLs or blanks; range 0--99.99	X
Successcompl	Successful Completion flag	No NULLs or blanks; acceptable values "0" or "1"	X
CourseSect	Course Section Number	No NULLs or blanks	X
CourseDiscpl	Course Discipline	No NULLs or blanks; accepted values are "M", "E", "R" or "Z".	X
CourseLvL	Course Level	No NULLs or blanks; Range "0"-"3".	X
TermQtr	Term or Quarter	No NULLs or blanks; Range "1"-"4".	X

2. Credit Student Information File

Data Element Title	Data Element Description	Validation	Type of error
CommCollege	Number assigned to a Community College	Blanks and NULLs not accepted; only range 01-16 as text is accepted (except 08)	X
SSN	Student's SSN	No Blanks and no NULLs, only 9 numeric characters, no number starts with "9" except for "9999999999"; no number starts with 000; no number ends with 0000; neither first, no last group of numbers contains three identical characters in SSN structure "XXX-XX-XXX".	X
ID	Locally assigned student ID	Only 9 characters; only numeric characters; no spaces; no blanks or NULLs.	X
LName	Last Name	No NULLs or blanks (=X); Length <>50, only alpha characters, no special characters ("W").	X,W
FName	First Name	No NULLs or blanks (=X); Length <>50, only alpha characters, no special characters ("W").	X,W
MName	Middle Name or Initial	Length <>50, only alpha characters, no special characters ("W").	W
BirthDate	Birth Date	Not NULL or blank; Between 1/1/1925 and 9/1/2005	W
Gender	Student Gender	No NULLs or blanks; range "0" ("W") – "2"	W, X
Ethnicity	Hispanic/Not Hispanic	No NULLs or blanks; range "0" ("W")- "2"	W, X
Amind	American Indian	No NULLs or blanks; acceptable codes "0" or "1"	X
Asian	Asian	No NULLs or blanks; acceptable codes "0" or "1"	X
Black	Black/African American	No NULLs or blanks; acceptable codes "0" or "1"	X
Pasiland	Pacific Islander	No NULLs or blanks; acceptable codes "0" or "1"	X
White	White	No NULLs or blanks; acceptable codes "0" or "1"	X
RaceNotRept	Race Not Reported	No NULLs or blanks; at least one Race (not ethnicity!) category contains "1", but this field reports "1" ("X"); All Race (not ethnicity!) category contains "0", and this field reports "0" ("X"); All Race (not ethnicity!) categories contain "0", and this field reports "1" ("W"); acceptable codes "0" or "1"	W, X
PrevAttend	Previously Attended Another PS Institution	No NULLs or blanks; Accepted values: "0" or "1"	X
HighDegree	Highest Degree Earned in Other Institution	No NULLs or blanks; Range "0" - "5"	X

TransCred	Credit Hours Transferred from Another Institution	No NULLs or blanks; Range 0 – 999.99	X
FirstEnroll	Year/month of first enrollment, this college	No Nulls or blanks; if range exceeds 192501 – 201708, “W”	W, X
EarnedCredHr	Earned Credit Hours	No NULLs or blanks; Range 0 – 999.99	X
HSAwardType	Type of HS Award	No NULLs or blanks; range “0”-“5”	X
YrHSAward	Year of HS award	No blanks; only 4 numeric characters or NULL allowed; if Type of HS award = 0,3,4, should be NULL; range beyond 1925 – 2020 = “W”	W, X
LEP	Limited English Proficiency	No Blanks and no NULLs; accepted values “0” or “1”	X
DisadvEcon	Economically Disadvantaged	No Blanks and no NULLs; accepted values “0” or “1”	X
Disabled	Disabled	No Blanks and no NULLs; accepted values “0” or “1”	X
SinglePar	Single Parent flag	No NULLs or blanks; acceptable values “0” or “1”	X
DispHome	Displaced Homemaker flag	No NULLs or blanks; acceptable values “0” or “1”	X
TechSkill	Technical Skill Attainment	No NULLs or blanks; range “0”-“2”	X
ServeSupport	Served With Support Services	No Blanks and no NULLs; accepted values “0” or “1”	X
StudentIntent	Student Intent	No NULLs or blanks; range “1”-“9”	X
HSIdent	HS Code (ACT)	No Blanks and no NULLs; 8 numeric characters; range “00010001” – “99999999”	X
HSIdentAct	HS Code (ACT)	No Blanks and no NULLs; 8 numeric characters; range “00010000” – “99999999”	X
CIPMajor1	CIP of Major POS	No NULLs or blanks; only 10 numeric characters; range 0100000000-5299999900; only “2401010000” may contain “0000” in last 4 positions.	X
CIPMajor2	CIP of second POS	No NULLs or blanks; only 10 numeric characters; range 0100000000-5299999900 and 9999999999; CIPMajor1<>CIPMajor2; only “2401010000” may contain “0000” in last 4 positions.	X
StudentID	State Student ID	No NULLs or blanks; only 10 numeric characters; range 1000000000 – 9999999999	X
ZipCode	HS Code (ACT)	No Blanks and no NULLs; 5 numeric characters	X

PellStat	Pell Status	No Blanks and no NULLs; accepted values "0" or "1"	X
FallCIP	End of Fall term CIP code	No NULLs or blanks; only 10 numeric characters; range 0100000000-5299999900; only "2401010000" may contain "0000" in last 4 positions.	X
DevMath	Developmental Math flag	No NULLs or blanks; range "0"- "3"	X
DevEng	Developmental English flag	No NULLs or blanks; range "0"- "3"	X
DevRead	Developmental Reading flag	No NULLs or blanks; range "0"- "3"	X
VetStatus	Veteran Status	No NULLs or blanks; acceptable values "0" or "1"	X
MilCred	Received Transcribed Credit for Military Service, training, or experience	No NULLs or blanks; range "0"- "2"	X
MilCredHr	Number of Military Credits	No NULLs or blanks; range 0--999.99	X
MilCredFirstMaj	Number of Military Credits Applied to First Intended Major	No NULLs or blanks; range 0--999.99	X
Pace	Pathways for Academic Career and Employment (PACE)	No NULLs or blanks; acceptable values "0" or "1"	X

3. Credit Student Awards File

Data Element Title	Data Element Description	Validation	Type of error
CommCollege	Number assigned to a Community College	Blanks and NULLs not accepted; only range 01-16 as text is accepted (except 08)	X
SSN	Student's SSN	No Blanks and no NULLs, only 9 numeric characters, no number starts with "9" except for "999999999"; no number starts with 000; no number ends with 0000; neither first, no last group of numbers contains three identical characters in SSN structure "XXX-XX-XXX".	X
ID	Locally assigned student ID	Only 9 characters; only numeric characters; no spaces; no blanks or NULLs.	X
AwardCode	Award Code	No NULLs or blanks; Range "1"- "9", "z" ("8" or "z" = "W")	X, W
AwardCode_CIP	Award Code/CIP/ITS O Relation	If Award code = 1, CIP = 2401010200 and Type of Program = 08; if Award Code = 2, CIP = 2401010200 and Type of Program = 09; If Award code = 3, CIP = 2401020200 and Type of Program = 10; if Award Code = 2 and Type of Program = 06, CIP <> 24XXXXXXXX; if Award Code = 4, 5, 6, 7, 9, CIP <> 24XXXXXXXX	X
CIP	Award CIP number	No NULLs or blanks; only 10 numeric characters; range 0100000000-5999999900.	X
InstLevel	Instructional Level	No NULLs or blanks; "03" is the only acceptable value.	X
TypeProgram	Type of Program	No NULLs or blanks; range 02-13 or 32	X
SpEmphasis	Special Emphasis	No NULLs or blanks; accepted values are "11", "09", "04".	X
ObjPurpose	Object and Purpose	No NULLs or blanks; "03" is the only acceptable value.	X
ReverseTrans	Reverse Transfer Award	No NULLs or blanks; Range "0" – "4"	X

4. Credit Course Catalog File

Data Element Title	Data Element Description	Validation	Type of error
CommCollege	Number assigned to a Community College	Blanks and NULLs not accepted; only range 01-16 as text is accepted (except 08)	X
CourseNumber	Common Course Number (CCN)	No NULLs or blanks; first 3 characters are only alpha (no special characters), last three characters only numeric	X
CourseName	CCN title	No NULLs or blanks	X

5. Non-Credit Course File

Data Element Title	Data Element Description	Validation	Type of error
CommCollege	Number assigned to a Community College	Blanks and NULLs not accepted; only range 01-16 as text is accepted (except 08)	X
SSN	Student's SSN	No Blanks and no NULLs, only 9 numeric characters, no number starts with "9" except for "999999999"; no number starts with 000; no number ends with 0000; neither first, no last group of numbers contains three identical characters in SSN structure "XXX-XX-XXX".	X
ID	Locally assigned student ID	No NULLs or blanks; Only 9 characters; only numeric characters; no spaces; no blanks or NULLs.	X
CIP	Program CIP number	No NULLs or blanks; Range 0100000000 – 6999990000	X
InstLevel	Instructional Level	No NULLs or blanks; Range 01 – 05	X
TypeProgram	Type of Program	No NULLs or blanks; Range 04; 22-74	X
SpEmphasis	Special Emphasis	No NULLs or blanks; Range 04 – 70	X
ObjPurpose	Object and Purpose	No NULLs or blanks; Acceptable values 02, 04, 22	X

NCCourse	NC Course Number	No NULLs or blanks;	X
CourseStart	Course Start Date	No NULLs or blanks; range 1/1/2000-1/1/2020	X
CourseEnd	Course End Date	No NULLs or blanks; range 1/1/2000-1/1/2020	X
ProjectCode	Project Code	No NULLs or blanks	X
DistanceLearn	Distance Learning flag	No NULLs or blanks; allowed values 1 or 0.	X
GapTuition	GAP tuition flag	No NULLs or blanks; allowed values 1 or 0.	X
HSDiploma	HS Diploma flag	No NULLs or blanks; allowed values 1 or 0.	X
CourseCompletion	Course Completion flag	No NULLs or blanks; allowed values 1 or 0.	X

6. Non-Credit Student File.

Data Element Title	Data Element Description	Validation	Type of error
CommCollege	Number assigned to a Community College	Blanks and NULLs not accepted; only range 01-16 as text is accepted (except 08)	X
SSN	Student's SSN	No Blanks and no NULLs, only 9 numeric characters, no number starts with "9" except for "999999999"; no number starts with 000; no number ends with 0000; neither first, no last group of numbers contains three identical characters in SSN structure "XXX-XX-XXX".	X
ID	Locally assigned student ID	Only 9 characters; only numeric characters; no spaces; no blanks or NULLs.	X
LName	Last Name	No NULLs or blanks (=X); Length <>50, only alpha characters, no special characters ("W").	X,W
FName	First Name	No NULLs or blanks (=X); Length <>50, only alpha characters, no special characters ("W").	X,W
MInit	Middle Initial	Only alpha characters, no special characters ("W").	W
BirthDate	Birth Date	Not NULL or blank; Between 1/1/1925 and 9/1/2005	W
Gender	Student Gender	No NULLs or blanks; range "0" ("W") – "2"	W, X
Ethnicity	Hispanic/Not Hispanic	No NULLs or blanks; range "0" ("W")-"2"	W, X
Amind	American Indian	No NULLs or blanks; acceptable codes "0" or "1"	X

Asian	Asian	No NULLs or blanks; acceptable codes "0" or "1"	X
Black	Black/African American	No NULLs or blanks; acceptable codes "0" or "1"	X
Pasisland	Pacific Islander	No NULLs or blanks; acceptable codes "0" or "1"	X
White	White	No NULLs or blanks; acceptable codes "0" or "1"	X
RaceNotRept	Race Not Reported	No NULLs or blanks; at least one Race (not ethnicity!) category contains "1", but this field reports "1" ("X"); All Race (not ethnicity!) category contains "0", and this field reports "0" ("X"); All Race (not ethnicity!) categories contain "0", and this field reports "1" ("W"); acceptable codes "0" or "1"	W, X
Residency	Student Residency	No NULLs or blanks; acceptable codes "0", "1", "2", "3".	X
ZipCode	Zip Code of Domicile	No NULLs or blanks; 5 numeric characters	X
PACE	Pace Student	No NULLs or blanks; acceptable codes "0", "1".	X

7. Non-Credit Course Catalog

Data Element Title	Data Element Description	Validation	Type of error
CommCollege	Number assigned to a Community College	Blanks and NULLs not accepted; only range 01-16 as text is accepted (except 08)	X
CourseNumber	NC Course Number	No NULLs or blanks	X
CourseName	NC Course title	No NULLs or blanks	X
ContactHours	Contact Hours	No NULLs or blanks, accepted range 0 – 999.99	x

8. Non-credit Awards

Data Element Title	Data Element Description	Validation	Type of error
CommCollege	Number assigned to a Community College	Blanks and NULLs not accepted; only range 01-16 as text is accepted (except 08)	X
SSN	Student's SSN	No Blanks and no NULLs, only 9 numeric characters, no number starts with "9" except for "999999999"; no number starts with 000; no number ends with 0000; neither first, no last group of numbers contains three identical characters in SSN structure "XXX-XX-XXX".	X
ID	Locally assigned student ID	Only 9 characters; only numeric characters; no spaces; no blanks or NULLs.	X
AwardCode	Award Code	No NULLs or blanks; Range "1"- "5"	X
AwardCode_CIP	Award Code/CIP/ITS O Relations	If award code ="1" And cip ="5301050000" And type of program ="41","v"; if award code ="2" And cip ="5301990000" And type of program ="41","v"; If award code >="3" And cip Between "0100000000" And "6199990000","v"	X
CIP	Award CIP number	No NULLs or blanks; only 10 numeric characters; range 0100000000-6199990000.	X
InstLevel	Instructional Level	No NULLs or blanks; acceptable values are "01","02","04","05".	X
TypeProgram	Type of Program	No NULLs or blanks; range 22-74 or 04	X
SpEmphasis	Special Emphasis	No NULLs or blanks; range "04 –"70"	X
ObjPurpose	Object and Purpose	No NULLs or blanks; acceptable values "04" or "22"	X

9. Employee

Data Element Title	Data Element Description	Validation	Type of error
CommCollege	Number assigned to a Community College	Blanks and NULLs not accepted; only range 01-16 as text is accepted (except 08)	X
SSN	Employee's SSN	No Blanks and no NULLs, only 9 numeric characters, no number starts with "9" except for "999999999" ("W"); no number starts with 000; no number ends with 0000; neither first, no last group of numbers contains three identical characters in SSN structure "XXX-XX-XXX".	W, X
LName	Last Name	No NULLs or blanks (=X); Length <>50, only alpha characters, no special characters ("W").	X,W
FName	First Name	No NULLs or blanks (=X); Length <>50, only alpha characters, no special characters ("W").	X,W
MName	Middle Name or Initial	Length <>50, only alpha characters, no special characters ("W").	W
BirthDate	Birth Date	Not NULL or blank; Between 1/1/1925 and 9/1/2005	W
Gender	Student Gender	No NULLs or blanks; range "0" ("W") – "2"	W, X
Ethnicity	Hispanic/Not Hispanic	No NULLs or blanks; range "0" ("W")- "2"	W, X
Amind	American Indian	No NULLs or blanks; acceptable codes "0" or "1"	X
Asian	Asian	No NULLs or blanks; acceptable codes "0" or "1"	X
Black	Black/African American	No NULLs or blanks; acceptable codes "0" or "1"	X
Pasiland	Pacific Islander	No NULLs or blanks; acceptable codes "0" or "1"	X
White	White	No NULLs or blanks; acceptable codes "0" or "1"	X
RaceNotRept	Race Not Reported	No NULLs or blanks; at least one Race (not ethnicity!) category contains "1", but this field reports "1" ("X"); All Race (not ethnicity!) category contains "0", and this field reports "0" ("X"); All Race (not ethnicity!) categories contain "0", and this field reports "1" ("W"); acceptable codes "0" or "1"	W, X
Degree	Employee Education	No NULLs or blanks; acceptable range "0"-"9"	X
Experience	Employee Experience	No NULLs or blanks; acceptable range "0"-"3"	X
Certified	Certification	No NULLs or blanks; acceptable codes "0", "1", "2"	X

10. Position

Data Element Title	Data Element Description	Validation	Type of error
CommCollege	Number assigned to a Community College	Blanks and NULLs not accepted; only range 01-16 as text is accepted (except 08)	X
SSN	Employee's SSN	No Blanks and no NULLs, only 9 numeric characters, no number starts with "9" except for "999999999" ("W"); no number starts with 000; no number ends with 0000; neither first, no last group of numbers contains three identical characters in SSN structure "XXX-XX-XXX".	W, X
PositionCode	Position Code	No blanks or NULLs. Accepted codes "510", "520", "525", "530", "540", "550".	X
EmployType	Type of Employment	No NULLs or blanks; accepted range 1-4.	X
TotEarn	Total Earnings	No NULLs or blanks; range 0-999999	X
BaseSalary	Base Salary	No NULLs or blanks; range 0-999999	X
DaysInContract	Days in Contract	NULL or range 1-365	x

Part III: Relational Logic validation/Stage 3 of validation.

What Stage 3 does:

- Checks certain expected logic in relations among fields within each file (e.g., no SSN can equal Local ID; expected assumed prime keys are observed, etc.)
- Checks expected inter-file relational logic (e.g., all SSN/Local IDs in Student Info file have at least one record with the same SSN/Local ID in Student Course file and vice versa; all Common Course Numbers in Credit Course Catalog are represented in Credit Course file, and vice versa, etc.)

Similar to stage II, relational logic validation can result in successful PASS, a WARNING or a CRITICAL ERROR. **Warnings are FYI/possible correction, and critical errors cannot be ignored and must be fixed.**

Command buttons are colorized by groups representing various files. Each button activates its own validation check. "Run All Validation" red button will run all validations consecutively.

Example of a PASS:

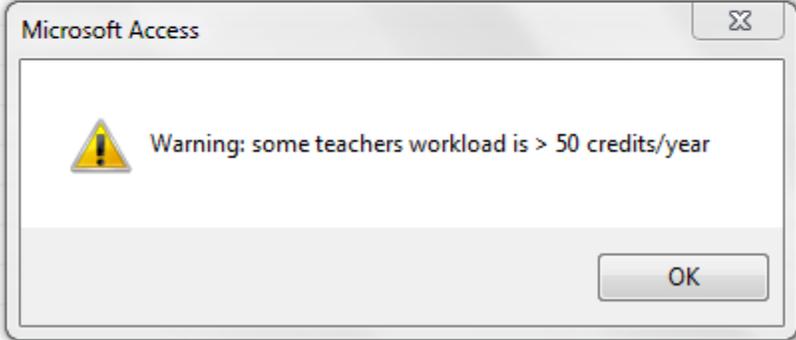


Passed: Credit Awards CIPs correspond to PGM CIPs

No further action is required.

Example of a WARNING:

CommCollege	SSN	FTEArtScienc	FTEVoc	WorkloadHr
14	345678947	0	53	53
14	345678948	0	51	51
14	345678917	51	0	51
14	345678919	0	52	52
*				



A Microsoft Access dialog box with a yellow warning triangle icon. The text inside reads: "Warning: some teachers workload is > 50 credits/year". There is an "OK" button at the bottom right.

WARNING instances provide both an explicit message with a yellow triangle/black exclamation mark symbol, and the list of problematic records.

In the example above the validation of Employee file revealed an unusual amount of teachers' workload: over 50 credit hours/year.

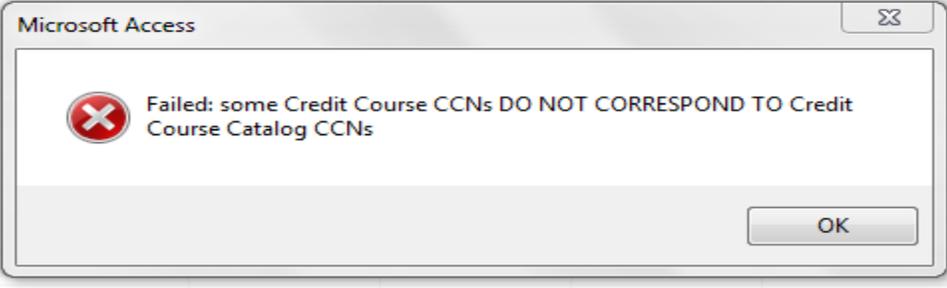
SOLUTION (for this example):

- a. Examine Employee File. If you established that over 50 credit hours workload was erroneously reported as overly high, change the amounts, and
- b. Reload Employee File as outlined in Part 1; then, run Part 2 and Part 3 again (you may proceed directly to Employee file validation in Part 3).

If you established that an unusually high amount was reported correctly, ignore the warning and proceed with validation.

Example of a CRITICAL ERROR:

CreditCatDIS	CourseNuml	CrCourseNu	Course
		14	ACC113



A Microsoft Access dialog box with a red 'X' icon. The text inside reads: "Failed: some Credit Course CCNs DO NOT CORRESPOND TO Credit Course Catalog CCNs". There is an "OK" button at the bottom right.

CRITICAL ERROR instances provide both an explicit message with a red circle/white “X” symbol, and the list of problematic records.

In the example above, the validation of correspondence of Common Course numbers between Credit Course File and Credit Course Catalog established that ACC113 is reported in the Credit Course file, but is not reported in credit catalog file.

SOLUTION:

- c. Examine Credit Course File and Credit Catalog File. Either replace ACC113 in the credit course file with a CCN available in your course catalog, or add ACC113 to your course catalog.
- d. Reload either one or both modified files as outlined in Part 1, and run Part 2 and Part 3 again.

DO NOT LEAVE ANY CRITICAL ERRORS UNATTENDED: YOUR FILE WOULD BE RETURNED BACK FROM DE. CAREFULLY EXAMINE WARNINGS: BY PROCEEDING WITHOUT CHANGES YOU CONFIRM THAT THE DATA IS VALID.

Part III: Relational Logic validation/Stage 3 of validation: description of validations

Validation	Description	Type of error
Credit Awards CIP TO PGM Correspondence	All CIP Numbers of Credit Awards should be a part of CIP numbers in college’s Program Master	X
Credit Awards contain identical records	Except for rare circumstances (e.g., a student received two certificates under the same CIP/ITSO and award date, because a program contains multiple certificate options) Credit Awards records should be unique	W
Credit Awards SSN <> Awards ID	Locally assigned IDs should not equal reported SSNs	X
Credit Course CIP to PGM CIP	All CIP Numbers of Credit Course file should be a part of CIP numbers in college’s Program Master	X
Credit Course Assumed Primary Key	Assumed primary key for Credit Course file (CC+SSN+ID+CCN+Course Section+Course Start Date+Course End Date) should not be violated, or the record would be considered duplicative	X
Credit Course SSN <> Course ID	Locally assigned IDs should not equal reported SSNs	X, W
Credit Student Records are Unique	No student SSN (except placeholder for “unknown”) and no student local ID is reported more than that once in Credit Student Information file	X
Credit Student SSN <> Student ID	Locally assigned IDs should not equal reported SSNs	X
Credit Course Num (< or >=	If CCN course number =<100, Developmental Course code should = 1 and Course Level should be > 0; conversely, CCN numbers >100 should be	X

100) To Dev Course To Course Level Correspondence	reported with code 0 both under Developmental Course and Course Level fields	
Credit A_S Student NOT Assessed for Teck Skill	Students with Major CIP number starting with 24XXXXXXXX (A&S/no POS students), with rare exception (e.g., major changed in the course of the year from occupationally specific to A&S), should not be assessed for Technical Skills	W
Credit Student SSN = Course SSN	All SSNs reported in Student Information file should be reported in Credit Student Course file	X
Credit Course SSN correspond to Student SSN	All SSNs reported in Credit Student Course file should be reported in Student Information file	X
Credit Course ID to Student ID	All Local IDs reported in Credit Student Course file should be reported in Student Information file	X
Credit Student SSN+ID = Course SSN+ID	All combinations of SSNs and Local IDs reported in Student Information file should be reported in Credit Student Course file	X
If Student Fall CIP = 9999999999, Course Term <> 1	CIP number as of the end of the Fall term (term 1) can't be unknown: if a student is reported in term 1 (Credit Course file), Fall CIP in Student Information file should <>"9999999999".	X
Credit Student ID = Course ID	All Local IDs reported in Student Information file should be reported in Credit Student Course file	X
Still in HS Students > 20 Years Old	Students are in Joint Enrollment (Credit Course file), but their age exceeds typical HS age (Credit Student Information file)	W
Credit Course SSN+ID = Student SSN+ID	All combinations of SSNs and Local IDs reported in Credit Student Course file should be reported in Credit Student Information file	X
Credit Student Major CIP correspond to Course CIP	With rare exceptions (e.g., a student has changed his/her major past latest taken course) Student Major CIP should have at least one CIP number for the same student reported in Credit Student Course file	W
Credit Course Catalog CCNs correspond to Course File CCNs	All CCNs reported in Credit Catalog file should be represented in Credit Course file	X
Credit Course File CCNs correspond to Course Catalog CCNs	All CCNs reported in Credit Course file should be represented in Credit Course Catalog file	X

Credit Course CIP To Student CIP Major	With rare exceptions (e.g., a student has changed his/her major past latest taken course) Credit Student Course file should have at least one CIP number for the same student reported under Student Major CIP in Student Information file	X
NC Awards contain identical records	No record in NC Awards file can be duplicative	X
Credit Course Catalog Records are Unique	A CCN can be reported only once in Credit Catalog file	X
NC Awards SSN <> NC Awards ID	Locally assigned IDs should not equal reported SSNs	X
NC Awards CIP TO NC PGM Correspondence	With rare exceptions (e.g., an entirely new CIP number has been introduced during reporting year and not reported to DE before NC PGM was updated), all CIPs in Awards should be represented in NC PGM	W
NC Course SSN <> NC Course ID	Locally assigned IDs should not equal reported SSNs	X
NC Course Assumed Primary Key	Assumed primary key can't be violated (CC+SSN+ID+Course number+course start date+course end date): a student can't take the same course at the same time more than once.	X
NC Course SSN correspond to NC Student SSN	All SSNs reported in NCredit Student Course file should be reported in Student Information file	X
NC Course CIP to NC PGM CIP	With rare exceptions (e.g., an entirely new CIP number has been introduced during reporting year and not reported to DE before NC PGM was updated), all CIPs in NC Course should be represented in NC PGM	X
NC Student SSN <> NC Student ID	Locally assigned IDs should not equal reported SSNs	X
NC Student SSN+ID = NC Course SSN+ID	All combinations of SSNs and Local IDs reported in NC Student Information file should be reported in NC Student Course file	X
NC Student ID = NC Course ID	All Local IDs reported in NC Student Information file should be reported in NCredit Student Course file	X
NC Course ID to NC Student ID	All Local IDs reported in NC Student Course file should be reported in NC Student Information file	X
NC Course Catalog Records are Unique	A NC Course number (complete string including course section) should be reported in NC Catalog only ones; titles can be duplicative (e.g., when a complete string for course number present the same course with different sections).	X
NC Course File Course # correspond to NC Course	All complete combinations for course number in NC Course file should be represented in NC Catalog file	X

Catalog Course #		
NC Course Catalog Course # correspond to NC Course File Course #	All complete combinations for course number in NC Catalog file should be represented in NC Course file	X
Employee Records are Unique	No SSN is reported twice	X
Employee Teach <50 credits/year	Workloads over 50 credit hours/year (viewed as teaching 15 to 20 credit courses /course sections per year) are deemed unusual	W
All Positions have reported Employees	All SSNs reported in Position files should be represented in Employee file	X
All Employees are listed with Positions	All SSNs reported in Employee file should be represented in Positions file	X
Position Assumed Primary Key	Assumed primary key should not be violated (CC+SSN+Position Code+Employment Type)	X

Part IV: Validation of aggregate data through confirmation reports/Stage 4 of validation.

What Stage 4 does:

- Presents the most important aspects of reported data in aggregate format, allowing “at a glance” comparison with expected numbers (e.g., total enrollment is in congruence with independently conducted calculations, etc.)
- Presents the most important aspects of reported data in aggregate format, allowing “check-sum” validations (e.g., between total unduplicated number of students and sum of students by gender, race, ethnicity of age groups, etc.)

Confirmation reports consist of general and purpose-specific aggregations:

1. Credit Awards – general aggregation report;
2. Credit Student Information – general aggregation report;
3. Credit Course - general aggregation report;
4. Non-Credit (student and course) - general aggregation report;
5. Non-Credit awards - general aggregation report;
6. Employee and Position - general aggregation report;
7. Credit Course CIP/code set – purpose-specific report: provides more detailed aggregations by program (CIP/ITSO) numbers.
8. Non-Credit Course CIP/code set – purpose-specific report: provides more detailed aggregations by program (CIP/ITSO) numbers.

9. NC “Adjusted 240 ABE Contact Hours” – purpose-specific report: demonstrates number of “trimmed” ABE contact hours, if any, by CIP number (up to 240 contact hours per student per year are allowed as state-supported portion of ABE education).
10. NC “Adjusted 300 Contact Hours” – purpose-specific report: demonstrates number of “trimmed” HS Diploma and Alternative HS Diploma contact hours, if any, by CIP number (up to 300 contact hours per student per year are allowed as state-supported portion of education under these categories).



All reports are available in two versions: view only (blue buttons) or export to PDF (green buttons). Exported PDF files can be shared with wider circle of reviewers.

Inside every report, unusual aggregations would automatically be highlighted in red (e.g., “0” for totals under some aggregated categories where it is not expected). Highlighted numbers are similar to warnings; no action is required if you can confirm them:

Displaced Homemaker	
Yes	No
0	360

Similar to all preceding stages of validation, any aggregate number you could not agree to would lead to re-compilation of your data in order to validate it, in impacted part, from stage 1.

[By agreeing with aggregate numbers in Confirmation Reports you confirm that that all aggregate numbers in those reports correspond to correctly reported unit-level data.](#)

Appendix A presents detailed description of the logic involved in calculation of confirmation reports.

Part V: Exporting validated data for submission to DE.

Upon successful validation, data can be exported out of the tool in one of the three text formats: tab delimited, comma separated and ASCII fixed width. The tool provides these three options in order to allow for intermittent exports in spreadsheet-friendly formats (such as comma separated), in cases when corrections can be done in a spreadsheet format before a new round of re-validation.

For example, a reviewer may discover that certain numbers could be replaced en masse in an Excel spreadsheet. Such reviewer might want to use comma separated text export function to be able to open the file in Excel, quickly fix the problem, and re-run all needed validations.

[However, final versions for submission to DE should only be prepared/exported in ASCII fixed width format.](#)

Exporting is conducted in two stages.

1. Convert all files (except Credit Course Catalog) into text by using green buttons BEFORE attempting any exports.
2. Use blue buttons to export either via stored procedures (recommended; requires creation of/access to C:\Temp folder), or manual pre-sets (if exporting to C:\Temp folder is not desirable or possible):



QUESTIONS, SUGGESTIONS, REQUESTS FOR TRAINING:

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APPENDIX A: CONFIRMATION REPORTS CALCULATION LOGIC

I. Credit Awards

1. Unduplicated count of awardees (students who received an award) per college (“undup”):
Number of students per college who received an award; no student is counted twice.
2. Duplicative count of records per college (“dup”)
Total number of records; identical records are counted as many times as they found.*
*Not only a student can receive two or more awards under different CIP numbers or different Type Of Award, but, as an exception, award records may formally look duplicative: current reporting system does not allow distinguishing between seemingly identical program options received by the same student on the same day under the same program CIP number, e.g., two certificates under the same CIP number.
3. Latest award date reported by college (“lastawarddate”).
Displays the latest award date reported by college in the credit award file.
4. Type of award counts.*
 - a. Associate of Arts, AA (“aa1”)
Number of awards with code 1 for Award Type.
 - b. Associate of Science, AS (“as2”)
Number of awards with code 2 for Award Type.
 - c. Associate of General Studies, AGS (“ags3”)
Number of awards with code 3 for Award Type.
 - d. Associate of Applied Arts, AAA (“aaa4”)
Number of awards with code 4 for Award Type.
 - e. Associate of Applied Science, AAS (“aas5”)
Number of awards with code 5 for Award Type.
 - f. Diploma (“dip6”)
Number of awards with code 6 for Award Type.
 - g. Certificate (“cert7”)
Number of awards with code 7 for Award Type.
 - h. Other type of award (“other8”)
Number of awards with code 8 for Award Type.
 - i. Associate of Professional Studies (“aps9”)
Number of awards with code 9 for Award Type.
 - j. Non-Graduate Program Completer (“nonz”)
Number of awards with code Z for Award Type.*Sum of a-j clusters should = “dup” number of awards.
5. Duplicative number of awards under each of the 17 federal career clusters (“clusdup01” through “clusdup99”)*
Method: Awards are joined by CIP number to the reference table “CIP Table” (field “code”) and summed under each of the codes under field “cluster” in “CIP Table”. Each student/CIP number combination is counted as many times as they have been reported.
*Sum of 17 clusters should = “dup” number of awards.
6. Duplicative number of awards under each of the 8 state career areas (“clusdup1” through “clusdup8”)*

Method: Awards are joined by CIP number to the reference table "CIP Table" (field "code") and summed under each of the codes under field "StateCluster" in "CIP Table". Each student/CIP number combination is counted as many times as they have been reported.

*Sum of 8 clusters should = "dup" number of awards.

7. Number of Reverse credit Awards*.

- a. Reverse credit awards received from ISU ("ISU")
Number of Awards under code 1 in "ReverseTrans" field.
- b. Reverse credit awards received from UI ("UI")
Number of Awards under code 2 in "ReverseTrans" field.
- c. Reverse credit awards received from UNI ("UNI")
Number of Awards under code 3 in "ReverseTrans" field.
- d. Reverse credit awards received from other institutions ("othercol")
Number of Awards under code 4 in "ReverseTrans" field.
- e. Not a Reverse credit award ("notrev")
Number of Awards under code 0 in "ReverseTrans" field.

*Sum of a-e should = "dup" number of awards.

8. UnDuplicated number of awards under each of the 17 federal career clusters ("clus01" through "clus99")

Method: Awards are joined by CIP number to the reference table "dbo_tbl_CIP" (field "code") located at EDDSMSQL243 in db_Career_Ed, and summed under each of the codes under field "cluster" in dbo_tbl_CIP. Each student/CIP number combination is counted only once.

9. Unduplicated number of awards under each of the 8 state career areas ("clus1" through "clus8")

Method: Awards are joined by CIP number to the reference table "CIP Table" (field "code") and summed under each of the codes under field "StateCluster" in "CIP Table". Each student/CIP number combination is counted only once.

II. Credit Student

1. Unduplicated count of students per college (“undup”): count of student IDs per college, no student is counted twice.
2. Age groups, starting from =<17 and on, numbers in group titles representing the range, ending with >=56, including DOB unknown (“bir1417”, “bir1822”, “bir2326”, “bir2730”, “bir3139”, “bir4055”, “bir56”, “birunkn”). Threshold: January 1 of the second calendar year comprising academic year (e.g., 1/1/2016 for AY 2015-2016).

Calculations are based on Year, Month and Day difference between DOB (“byear”, etc.) and Threshold Date (“dyear”, etc.) as follows in the logic language: *If([bmonth]=[dmonth] And [bday]=[dday],[dyear]-[byear],If([bmonth]=[dmonth] And [bday]>[dday],[dyear]-[byear]-1,[dyear]-[byear])) AS Age*

Checksum: sum of students in all age categories should = number of all students per college.

3. Gender: number of males (“Male”, number of student IDs, per college, who were reported with code “1” under data element “Gender”), females (“Female”, number of student IDs, per college, who were reported with code “2” under data element “Gender”), and students with unknown gender (“GenUnkn”, number of student IDs, per college, who were reported with code “0” under data element “Gender”).

Checksum: sum of students in all three gender codes should = number of all students per college.

4. Race/Ethnicity: number of student IDs, per college, reported with code “1” under each of the Race/Ethnicity in fields “Ethnicity”, “Amind”, “Asian”, “Black”, “Paclsland”, “White” (“Amind”, “Asian”, “Black”, “Paclsland”, “Hisp”, “White”). Calculated fields to add: “Two or More Races” (“comb”) and “Race/Ethnicity Not Reported” (“racenotgiv”).

Unduplicated numbers calculation steps/logic:

- a. Calculate number of Hispanics, and exclude student IDs with code “1” under “Hispanics” from further calculations;
- b. Of the remainder of the student pool, calculate number of student IDs with code “1” in more than one race for “Two Or More Races” (e.g., both under “White” and “Black”) and exclude this category of students from further calculation (“comb”);
- c. Of the remainder of the student pool, calculate the number of student IDs with code “1” under “Amind”, “Asian”, “Black”, Paclsland”, “White”.
- d. Of the remainder, calculate the number of student IDs with code “0” under “Amind”, “Asian”, “Black”, Paclsland”, “White” for “Race/Ethnicity Not Reported” (“racenotgiv”).

Checksum: sum of students in all eight race/ethnicity categories should = number of all students per college.

5. Previously attended another postsecondary institution: count of student IDs reported with code “1” under data element “PrevAttend” for “yes” (“prevyes”) and under code “0” for “no” (“prevno”).
6. Highest Degree Earned at Another PS Institution: count of student IDs, per college, reported with codes “0” through “5” under data element “HighDegree” (correspondingly, under “hsdegreeunkn”, “hsdegree1”, “hsdegree2”, “hsdegree3”, “hsdegree4”, “hsdegree5”).
7. Transfer Credit Hours: (“Transcr”), sum of credit hours, per college, reported under data element “TransCred”.

8. Earned Credit Hours: (“**earnedcr**”), sum of credit hours, per college, reported under data element “EarnedCredHr”.
9. High School Award Type: count of student IDs, per college, reported with codes “0” through “5” under data element “HSAwardType” (correspondingly, under “**hsawardunkn**”, “**hsaward1**”, “**hsaward2**”, “**hsaward3**”, “**hsaward4**”, “**hsaward5**”).
10. Limited English Proficient: (“**LEPYes**”) count of student IDs, per college, reported with code “1” under data element “LEP”, and (“**LEPNo**”) count of student IDs, per college, reported with code “0” under data element “LEP”.
11. Economically Disadvantaged: (“**disadveconYes**”) count of student IDs, per college, reported with code “1” under data element “DisadvEcon”, and (“**disadveconNo**”) count of student IDs, per college, reported with code “0” under data element “DisadvEcon”.
12. Disabled: (“**disablYes**”) count of student IDs, per college, reported with code “1” under data element “Disabled”, and (“**disablNo**”) count of student IDs, per college, reported with code “0” under data element “Disabled”.
13. Single Parent: (“**singYes**”) count of student IDs, per college, reported with code “1” under data element “SinglePar”, and (“**singNo**”) count of student IDs, per college, reported with code “0” under data element “SinglePar”.
14. Displaced Homemaker: (“**DisphomeYes**”) count of student IDs, per college, reported with code “1” under data element “DispHome”, and (“**DispHomeNo**”) count of student IDs, per college, reported with code “0” under data element “DispHome”.
15. Tack Skill Attainment: (“**TechSkillNotAss**”) count of student IDs, per college, reported with code “0” under data element “TachSkill”; (“**TechskillnotProf**”) count of student IDs, per college, reported with code “1” under data element “TechSkill”, (“**TechskillProf**”) count of student IDs, per college, reported with code “2” under data element “TechSkill”.
16. Served With Support Services: (“**SuppYes**”) count of student IDs, per college, reported with code “1” under data element “ServSupport”, and (“**SuppNo**”) count of student IDs, per college, reported with code “0” under data element “ServSupport”.
17. Student Intent: (“**intent1**” – “**intent8**”), count of student IDs, per college, reported with codes “1” through code “8”, correspondingly, under data element “StudentIntent”, and (“**intentunkn**”) with code “9” under data element “StudentIntent”.
18. Veteran status: (“**VetY**”) count of student IDs, per college, reported with code “1” under data element “VetStatus”, and (“**VetN**”) count of student IDs, per college, reported with code “0” under data element “VetStatus”.
19. Received Transcribed Credit for Military Service: (“**MilCrHY**”) count of student IDs, per college, reported with code “1” under data element “MilCred”; (“**MilCrHN**”) count of student IDs, per college, reported with code “0” under data element “MilCred”; (“**MilCredNA**”) count of student IDs, per college, reported with code “2” under data element “MilCred”.
20. Number of Military Credits: (“**MilTransCrH**”) sum of credit hours reported under data element “MilCredHr”.
21. Number of Military Credits Applied to First Intended Major: (“**MilCred1stMaj**”) sum of credit hours reported under data element “MilCredFirstMaj”.
22. PACE status: (“**PaceY**”) count of student IDs, per college, reported with code “1” under data element “Pace”, and (“**PaceN**”) count of student IDs, per college, reported with code “0” under data element “Pace”.

III. Credit Course

1. Unduplicated count of students who took credit courses per college (“**undup**”): count of student IDs, no student is counted twice.
2. Duplicative count of courses per college (“**dup**”)
Total number of records per college.
3. Count of students who participated in course-taking activities on full-time basis during an AY (=>24 credit hours), (“**fulltime**”).
 - k. Sum CourseCreditHrs per college/student.
 - l. Filter by >=24.
 - m. Calculate number of IDs per college.
4. Sum of credit hours of students who participated in course-taking activities on full-time basis during an AY (=>24 credit hours), (“**FThours**”).
 - a. Sum CourseCreditHrs per college/student.
 - b. Filter by >=24.
 - c. Sum up CourseCredHrs per college.
5. Count of students who participated in course-taking activities on part-time basis during an AY (<24 credit hours), (“**parttime**”).
 - a. Sum CourseCreditHrs per college/student.
 - b. Filter by <24.
 - c. Calculate number of IDs per college.
6. Sum of credit hours of students who participated in course-taking activities on part-time basis during an AY (<24 credit hours), (“**PTHours**”).
 - a. Sum CourseCreditHrs per college/student.
 - b. Filter by <24.
 - c. Sum up CourseCredHrs per college
7. Sum of all credit hours per college (“**crhours**”): sum of “FThours” and “PTHours”, all credit hours per college.
8. Duplicative Number of courses by Registration type (regular student, contracted training, HS student), and unduplicated number of students who took courses under each registration category:
 - a. Regular student courses (“**regtypedup0**”): number of courses, per college, reported under code “0” in field “Regtype”.
 - b. Contracted training student courses (“**regtypedup1**”): number of courses, per college, reported under code “1” in field “Regtype”.
 - c. HS student courses (“**regtypedup2**”): number of courses, per college, reported under code “2” in field “Regtype”.
 - d. Regular student courses (“**regtype0**”): number of courses, per college, reported under code “0” in field “Regtype”, unduplicated by ID and summed up per college.
 - e. Contracted training student courses (“**regtype1**”): number of courses, per college, reported under code “1” in field “Regtype”, unduplicated by ID and summed up per college.
 - f. HS student courses (“**regtype2**”): number of courses, per college, reported under code “2” in field “Regtype”, unduplicated by ID and summed up per college.
9. Duplicative Number of courses by HS Enrollment Type (not applicable, PSEO, 28E Agreement, Tuition); unduplicated number of students who took courses under each HS Enrollment Type;

number of credit hours taken by students under each HS Enrollment Type; unduplicated count of HS students across HS enrollment type:

- a. Not applicable (= "not a HS student"), ("hsenrolldup0"): number of courses, per college, reported under code "0" in field "HsEnrollmentType".
 - b. PSEO student courses ("hsenrolldup1"): number of courses, per college, reported under code "1" in field "HsEnrollmentType".
 - c. Contractual Agreement (28E Agreement) ("hsenrolldup2"): number of courses, per college, reported under code "2" in field "HsEnrollmentType".
 - d. Tuition (HS, tuition-paying student) ("hsenrolldup3"): number of courses, per college, reported under code "3" in field "HsEnrollmentType".
 - e. Not applicable, unduplicated (= "not a HS student"), ("hsenroll0"): unduplicated number of IDs, per college, reported under code "0" in field "HsEnrollmentType".
 - f. PSEO students, unduplicated ("hsenroll1"): unduplicated number of IDs, per college, reported under code "1" in field "HsEnrollmentType".
 - g. Contractual Agreement, unduplicated (28E Agreement) ("hsenroll2"): unduplicated number of IDs, per college, reported under code "2" in field "HsEnrollmentType".
 - h. Tuition HS students, unduplicated (HS, tuition-paying student) ("hsenroll3"): unduplicated number of IDs, per college, reported under code "3" in field "HsEnrollmentType".
 - i. Not applicable credit hours (= "not a HS student"), ("hsenroll0hrs"): sum of credit hours ("CourseCreditHr"), per college, reported under code "0" in field "HsEnrollmentType".
 - j. PSEO student credit hours ("hsenroll1hrs"): number of credit hours ("CourseCreditHr"), per college, reported under code "1" in field "HsEnrollmentType".
 - k. Contractual Agreement student credit hours (28E Agreement) ("hsenroll2hrs"): credit hours ("CourseCreditHr"), per college, reported under code "2" in field "HsEnrollmentType".
 - l. Tuition HS student credit hours (HS, tuition-paying student) ("hsenroll3hrs"): credit hours ("CourseCreditHr"), per college, reported under code "3" in field "HsEnrollmentType".
 - m. Unduplicated count of HS students across HS Enrollment Types (a HS student is counted only once) ("hsundup"): unduplicated count of IDs, per college, of all students with codes "1", "2", and/or "3" in field "HsEnrollmentType".
10. Duplicative count of courses taken by students under types of Residency; unduplicated count of students under types of Residency:
- a. Iowa Resident, count of courses ("residedup1"): number of courses, per college, reported under code "1" in field "Residency".
 - b. Out of state resident, count of courses ("residedup2"): number of courses, per college, reported under code "2" in field "Residency".
 - c. Foreign student, count of courses ("residedup3"): number of courses, per college, reported under code "3" in field "Residency".
 - d. Residency unknown, count of courses ("residedupunk"): number of courses, per college, reported under code "0" in field "Residency".
 - e. Iowa Resident, count of students ("reside1"): unduplicated number of student IDs, per college, reported under code "1" in field "Residency".
 - f. Out of state resident, count of students ("reside2"): unduplicated number of student IDs, per college, reported under code "2" in field "Residency".

- g. Foreign student, count of students (“**reside3**”): unduplicated number of student IDs, per college, reported under code “3” in field “Residency”.
 - h. Residency unknown, count of students (“**resideunk**”): unduplicated number of student IDs, per college, reported under code “0” in field “Residency”.
11. Duplicative count of courses taken by students under types of Distance Learning; number of credit hours taken by students under types of Distance Learning; number of students in distance learning courses:
- a. 100% Web-based courses, count of courses (“**onlineyes**”): number of courses, per college, reported under code “1” in field “DistanceLearn”.
 - b. =>50% delivery method is Distance Learning, count of courses (“**onlinedl**”): number of courses, per college, reported under code “2” in field “DistanceLearn”.
 - c. Not a distance learning course, count of courses (“**onlineno**”): number of courses, per college, reported under code “0” in field “DistanceLearn”.
 - d. 100% Web-based courses, sum of credit hours (“**onlineyeshrs**”): sum of credit hours (“CreditCourseHrs”), per college, reported under code “1” in field “DistanceLearn”.
 - e. =>50% delivery method is Distance Learning, sum of credit hours (“**onlinedlhrs**”): sum of credit hours (“CreditCourseHrs”), per college, reported under code “2” in field “DistanceLearn”.
 - f. Not a distance learning course, sum of credit hours (“**onlinenohrs**”): sum of credit hours (“CreditCourseHrs”), per college, reported under code “0” in field “DistanceLearn”.
 - g. Number of students who took non-distance learning courses (“**DLO**”): unduplicated number of students (IDs), per college, reported with code “0” under Distance Learning (“DistanceLearn”) field.
 - h. Number of students who took 100% online distance learning courses (“**DL1**”): unduplicated number of students (IDs), per college, reported with code “1” under Distance Learning (“DistanceLearn”) field.
 - i. Number of students who took courses with =>50% of the content delivered via distance learning method (“**DL2**”): unduplicated number of students (IDs), per college, reported with code “2” under Distance Learning (“DistanceLearn”) field.
12. Duplicative count of developmental courses; number of credit hours in developmental courses; number of students in developmental courses; number of courses by developmental level:
- a. Number of developmental courses, by college (“**devlyes**”): number of courses, per college, reported with course numbers <100 (positions 4,5,6 in in field “Course”).
 - b. Number of college-level courses, by college (“**devlno**”): number of courses, per college, reported with course numbers >=100 (positions 4,5,6 in in field “Course”).
 - c. Number of credit hours in developmental courses, by college (“**devlyeshrs**”): number of credit hours, per college, reported with course numbers <100 (positions 4,5,6 in in field “Course”).
 - d. Number of credit hours in college-level courses, by college (“**devlnohrs**”): number of credit hours, per college, reported with course numbers =>100 (positions 4,5,6 in in field “Course”).
 - e. Number of students in developmental courses (“**Devly**”): unduplicated count of students (IDs), per college, reported with course numbers <100 (positions 4,5,6 in in field “Course”).

- f. Number of students in non-developmental courses (“DevIN”): unduplicated count of students (IDs), per college, reported with course numbers >=100 (positions 4,5,6 in in field “Course”).
 - g. Number of developmental courses one level below college (“DevelLevel1”): number of courses, per college, reported with code “1” in field “CourseLvl”.
 - h. Number of developmental courses two levels below college (“DevelLevel2”): number of courses, per college, reported with code “2” in field “CourseLvl”.
 - i. Number of developmental courses three levels below college (“DevelLevel3”): number of courses, per college, reported with code “3” in field “CourseLvl”.
13. Earned Credit Hours (“earnedhours”): sum of credit hours, per college, reported in field “EarnedHrs”.
 14. Number of Successfully Completed courses (“successcompl”): number of courses, per college, reported with code “1” under field “successcompl”.
 15. Number of courses in 17 federal Career Clusters (“clusdup1” through “clusdup99”): number of courses in CIP numbers (field “CIP”) under each of the Federal Career clusters (field “cluster”, 1-16, 99 for “not clustered”) in dbo_tbl_CIP table.
 16. Number of students in 17 federal Career Clusters (“clus1” through “clus99”): number of student IDs in CIP numbers (field “CIP”) unduplicated by each of the Federal Career clusters (field “cluster”, 1-16, 99 for “not clustered”) in dbo_tbl_CIP table.
 17. Number of credit hours in courses in 17 federal Career Clusters (“clushr1” through “clushr99”): number of credit hours in courses in CIP numbers (field “CIP”) under each of the Federal Career clusters (field “cluster”, 1-16, 99 for “not clustered”) in dbo_tbl_CIP table.
 18. Number of courses in 8 state service areas (“clusdup01” through “clusdup08”): number of courses in CIP numbers (field “CIP”) under each of the state service areas (field “StateCluster”, 1-7, 99 (“clusdup08”) for “not clustered”) in dbo_tbl_CIP table.
 19. Number of students in 8 state service areas (“clus01” through “clus08”): number of student IDs in CIP numbers (field “CIP”) unduplicated by each of the state service area (field “StateCluster”, 1-7, 99 (“clus08”) for “not clustered”) in dbo_tbl_CIP table.
 20. Number of credit hours in courses in 8 state service areas (“clushr01” through “clushr08”): number of credit hours in courses in CIP numbers (field “CIP”) under each of the state service areas (field “StateCluster”, 1-7, 99 (“clushr08”) for “not clustered”) in dbo_tbl_CIP table.
 21. Unduplicated count of students in A&S programs (A&S ONLY)(“cp08und”): unduplicated number of students (IDs), per college, who participated in courses with Type of Program (“TypeProgram”) 08, or/and 09, or/and 10 ONLY (NOT participated in any other Type of Program).
 22. Unduplicated count of students in AS/CO programs (AS/CO ONLY)(“cp06und”): unduplicated number of students (IDs) , per college, who participated in courses with Type of Program (“TypeProgram”) 06 ONLY (NOT participated in any other Type of Program).
 23. Unduplicated count of students in CTE programs (CTE ONLY)(“ctallund”): unduplicated number of students (IDs) , per college, who participated in courses with Type of Program (“TypeProgram”) <> 06, 08, 09, 10 ONLY (NOT participated both in 06, 08, 09, 10 AND other Types of Program).
 24. Unduplicated count of students in CTE AND/OR A&S AND/OR AS/CO programs (in more than one Type of Program ONLY)(“cbothund”): unduplicated number of students (IDs), per college,

who participated in courses with Type of Program ("TypeProgram") = 06 And/or 08, 09, 10 And/or other Type of Program (in mixed types of program) ONLY (NOT included under ## 21, 22, 23).

Checksum: sum of ## 21, 22, 23, 24 should = unduplicated number of student IDs per college.

25. Number of courses taken by students in A&S programs (A&S ONLY)("cp08dup"): number of courses, per college, taken by students with Type of Program ("TypeProgram") 08, or/and 09, or/and 10 ONLY (NOT participated in any other Type of Program).
26. Number of courses taken by students in AS/CO programs (AS/CO ONLY)("cp06dup"): number of courses, per college, taken by students with Type of Program ("TypeProgram") 06 ONLY (NOT participated in any other Type of Program).
27. Number of courses taken by students in CTE programs (CTE ONLY)("ctalldup"): number of courses, per college, taken by students with Type of Program ("TypeProgram") <> 06, 08, 09, 10 ONLY (NOT participated both in 06, 08, 09, 10 AND other Types of Program).
28. Number of courses taken by students in CTE AND/OR A&S AND/OR AS/CO programs (in more than one Type of Program ONLY)("cbothdup"): number of courses, per college, taken by students with Type of Program ("TypeProgram") = 06 And/or 08, 09, 10 And/or other Type of Program (in mixed types of program) ONLY (NOT included under ## 25, 26, 27).

Checksum: sum of ## 25, 26, 27, 28 should = number of all courses per college.

29. Number of credit hours in courses taken by students in A&S programs (A&S ONLY)("cp08hrs"): number of credit hours ("CourseCreditHr") in courses, per college, taken by students with Type of Program ("TypeProgram") 08, or/and 09, or/and 10 ONLY (NOT participated in any other Type of Program).
30. Number of credit hours in courses taken by students in AS/CO programs (AS/CO ONLY)("cp06hrs"): number of credit hours ("CourseCreditHr") in courses, per college, taken by students with Type of Program ("TypeProgram") 06 ONLY (NOT participated in any other Type of Program).
31. Number of credit hours in courses taken by students in CTE programs (CTE ONLY)("ctallhrs"): number of credit hours ("CourseCreditHr") in courses, per college, taken by students with Type of Program ("TypeProgram") <> 06, 08, 09, 10 ONLY (NOT participated both in 06, 08, 09, 10 AND other Types of Program).
32. Number of credit hours in courses taken by students in CTE AND/OR A&S AND/OR AS/CO programs (in more than one Type of Program ONLY)("cbothhrs"): number of credit hours ("CourseCreditHr") in courses, per college, taken by students with Type of Program ("TypeProgram") = 06 And/or 08, 09, 10 And/or other Type of Program (in mixed types of program) ONLY (NOT included under ## 29, 30, 31).

Checksum: sum of ## 29, 30, 31, 32 should = number of all credit hours per college.

IV. Non-Credit Student and Non-Credit Course.

Non-Credit Student File

1. Unduplicated count of students per college (“undup”): count of student IDs per college, no student is counted twice.
2. Gender: number of males (“Male”, number of student IDs, per college, who were reported with code “1” under data element “Gender”), females (“Female”, number of student IDs, per college, who were reported with code “2” under data element “Gender”), and students with unknown gender (“GenUnkn”, number of student IDs, per college, who were reported with code “0” under data element “Gender”).

Checksum: sum of students in all three gender codes should = number of all students per college.

3. Unduplicated count of students under types of Residency:
 - i. Iowa Resident, count of students (“resid1”): number of students, per college, reported under code “1” in field “Residency”.
 - j. Out of state resident, count of students (“resid2”): number of students, per college, reported under code “2” in field “Residency”.
 - k. Foreign student (“resid3”): number of students, per college, reported under code “3” in field “Residency”.
 - l. Residency unknown, count of students (“residunkn”): number of students, per college, reported under code “0” in field “Residency”.

Checksum: sum of students in all four residency codes should = number of all students per college.

4. Race/Ethnicity: number of student IDs, per college, reported with code “1” under each of the Race/Ethnicity in fields “Ethnicity”, “Amind”, “Asian”, “Black”, “Paclsland”, “White” (“Amind”, “Asian”, “Black”, “Paclsland”, “Hisp”, “White”). Calculated fields to add: “Two or More Races” (“comb”) and “Race/Ethnicity Not Reported” (“racenotgiv”).

Unduplicated numbers calculation steps/logic:

- e. Calculate number of Hispanics, and exclude student IDs with code “1” under “Hispanics” from further calculations;
- f. Of the remainder of the student pool, calculate number of student IDs with code “1” in more than one race for “Two Or More Races” (e.g., both under “White” and “Black”) and exclude this category of students from further calculation (“comb”);
- g. Of the remainder of the student pool, calculate the number of student IDs with code “1” under “Amind”, “Asian”, “Black”, “Paclsland”, “White”.
- h. Of the remainder, calculate the number of student IDs with code “0” under “Amind”, “Asian”, “Black”, “Paclsland”, “White” for “Race/Ethnicity Not Reported” (“racenotgiv”).

Checksum: sum of students in all eight race/ethnicity categories should = number of all students per college.

5. Age groups, starting from =<17 and on, numbers in group titles representing the range, ending with >=56, including DOB unknown (“bir1417”, “bir1822”, “bir2326”, “bir2730”, “bir3139”, “bir4055”, “bir56”, “birunkn”). Threshold: January 1 of the second calendar year comprising academic year (e.g., 1/1/2016 for AY 2015-2016).

Calculations are based on Year, Month and Day difference between DOB (“byear”, etc.) and Threshold Date (“dyear”, etc.) as follows in the logic language: *IIf([bmonth]=[dmonth] And*

$[bday]=[dday],[dyear]-[byear],\text{If}([bmonth]=[dmonth]\text{ And }[bday]>[dday],[dyear]-[byear]-1,[dyear]-[byear])) AS Age$

Checksum: sum of students in all age categories should = number of all students per college.

6. PACE status: (“**PaceY**”) count of student IDs, per college, reported with code “1” under data element “Pace”, and (“**PaceN**”) count of student IDs, per college, reported with code “0” under data element “Pace”.

Non-Credit Course File

1. Duplicative count of courses per college (“**dup**”)
Total number of records per college.
2. Sum of all contact hours per college (“**conthrs**”): sum of all contact hours (“ContactHrs”) per college.
3. Sum of all eligible contact hours per college (“**Eligible**”): sum of all contact hours (“ContactHrs”) reported under code “04” in “ObjPurpose” field per college.
4. Sum of all non-eligible contact hours per college (“**noteligible**”): sum of all contact hours (“ContactHrs”) reported under code “22” in “ObjPurpose” field per college.

Checksum for #8 and #9: sum of eligible and non-eligible contact hours should = total contact hours per college.

5. Duplicative count of developmental courses; number of students in developmental courses; number of contact hours in developmental courses:
 - j. Number of developmental courses, by college (“**devldup**”): number of courses, per college, reported with code “1” in field “DevCourse”.
 - k. Number of students in developmental courses (“**devlundup**”): unduplicated count of students (IDs), per college, reported with code “1” in field “DevCourse”.
 - l. Number of contact hours in developmental courses, by college (“**devlduphrs**”): number of contact hours, per college, reported with code “1” in field “DevCourse”.
6. Duplicative count of Gap Tuition courses; number of students in Gap Tuition courses; number of contact hours in Gap Tuition courses:
 - a. Number of Gap Tuition courses, by college (“**gapdup**”): number of courses, per college, reported with code “1” in field “GapTuition”.
 - m. Number of students in Gap Tuition courses (“**gapundup**”): unduplicated count of students (IDs), per college, reported with code “1” in field “GapTuition”.
 - n. Number of contact hours in Gap Tuition courses, by college (“**gapduphrs**”): number of contact hours, per college, reported with code “1” in field “GapTuition”.
7. Unduplicated count of students with HS Diploma; number of courses taken by students with HS Diploma; number of contact hours taken by students with HS Diploma:
 - a. Unduplicated count of students with HS Diploma (“**HSDipUndup**”): unduplicated number of student IDs (field “ID”) reported with code “1” in field “HSDiploma”, per college.
 - b. Number of courses, taken by HS Diploma students, by college (“**HSDipDup**”): number of courses, per college, reported with code “1” in field “HSDiploma”, per college.
 - c. Number of contact hours in courses, taken by HS Diploma students, by college (“**HSDipHrs**”): number of contact hours in courses, reported with code “1” in field “HSDiploma”, per college.

8. Number of courses in 14 Non-Credit Categories; number of students in 14 Non-Credit Categories; number of contact hours in 14 Non-Credit Categories:
- Number of courses in non-credit categories (“clusdup1” through “clusdup14”): number of courses (records) with ITSO codes for each category, per college (see table below).
Checksum: sum of courses in 14 categories should= total number of courses/records.
 - Number of students in courses under each non-credit category (“clusundup1” through “clusundup14”): unduplicated number of students (IDs) in courses (records) with ITSO codes for each category, per college (see table below).
 - Number of contact hours in courses under each non-credit categories (“clushr1” through “clushr14”): number of contact hours in courses (records) with ITSO codes for each category, per college (see table below).
Checksum: sum of contact hours in 14 categories should= total number of contact hours per college.
9. Course Completion: (“complcourse”) count of student IDs reported with code “1” under data element “CourseCompletion” and (“noncomplcourse”) count of student IDs reported with code “0” under data element “CourseCompletion”.

NC Categories		
NC Category	NC Category Description	ITSO
01	Adult/Continuing Education	T=40 AND S <> 30
02	Secondary Education	T=41
03	State/Federal Mandated	T=43 OR 44 OR 45
04	Career/Vocational/Academic Success	T=04 AND S<>30 AND S<>49 AND S<>50 AND S<>51 AND S<>52 AND S<>53 AND S<>54
05	Corrections	S=30
06	Economic Development	T=42 AND S<>30 AND S<>49 AND S<>50 AND S<>51 AND S<>52 AND S<>53 AND S<>54
07	Recertification/Relicensure	T=46
08	Community/Public Policy	T=48
09	Family Development/Health	T=49
10	Adult Learning	T=51
11	Leisure/Recreational	T=50
12	Local Community College	S=70
13	Secondary Jointly Admin	T=22
14	Workforce Training and Economic Development Fund	S=49 OR S=50 OR S=51 OR S=52 OR S=51 OR S=52 OR S=53 OR S=54

V. Non-Credit Awards

1. Duplicative count of records per college (“dup”)
Total number of records; identical records are counted as many times as they found.*
*Not only a student can receive two or more awards under different CIP numbers or different Type Of Award, but, as an exception, award records may formally look duplicative: current reporting system does not allow distinguishing between seemingly identical program options received by the same student on the same day under the same program CIP number, e.g., two certificates under the same CIP number.
2. Unduplicated count of awardees (students who received an award) per college (“undup”):
Number of students per college who received an award; no student is counted twice.
3. Latest award date reported by college (“lastawarddate”).
Displays the latest award date reported by college in the credit award file.
4. Type of award counts.*
 - n. Adult High School (“adlhs”)
Number of awards with code 1 for Award Type.
 - o. Alternative HS (“alths”)
Number of awards with code 2 for Award Type.
 - p. GAP tuition program completer (“GAP”)
Number of awards with code 3 for Award Type.
 - q. Industry Certification Recipient (“indust”)
Number of awards with code 4 for Award Type.
 - r. Local Program Completer (“locindust”)
Number of awards with code 5 for Award Type.*Sum of a-e clusters should = “dup” number of awards.
5. Duplicative number of awards under each of the 17 federal career clusters (“clusdup01” through “clusdup99”)*
Method: Awards are joined by CIP number to the reference table “dbo_tbl_CIP” (field “code”) located at EDDSMSQL243 in db_Career_Ed, and summed under each of the codes under field “cluster” in dbo_tbl_CIP. Each student/CIP number combination is counted as many times as they have been reported.
*Sum of 17 clusters should = “dup” number of awards.
6. UnDuplicated number of awards under each of the 17 federal career clusters (“clus01” through “clus99”)
Method: Awards are joined by CIP number to the reference table “CIP Table” (field “code”) and summed under each of the codes under field “cluster” in “CIP Table”. Each student/CIP number combination is counted as many times as they have been reported; results are unduplicated: each student/CIP number combination is counted only once.

VI. Employee/Position

1. Unduplicated count of employees per college (“**undup**”): count of employees SSNs per college from Employee file, no employee is counted twice.
2. Age groups, Employee file, starting from =<17 and on, numbers in group titles representing the range, ending with >=56, including DOB unknown (“**bir1417**”, “**bir1822**”, “**bir2326**”, “**bir2730**”, “**bir3139**”, “**bir4055**”, “**bir56**”, “**birunkn**”). Threshold: January 1 of the second calendar year comprising academic year (e.g., 1/1/2016 for AY 2015-2016).

Calculations are based on Year, Month and Day difference between DOB (“byear”, etc.) and Threshold Date (“dyear”, etc.) as follows in the logic language: *If{([bmonth]=[dmonth] And [bday]=[dday],[dyear]-[byear],If{([bmonth]=[dmonth] And [bday]>[dday],[dyear]-[byear]-1,[dyear]-[byear]))} AS Age*

Checksum: sum of employees in all age categories should = number of all employees per college.

3. Gender, Employee file: number of males (“**Male**”, number of employee SSNs, per college, who were reported with code “1” under data element “Gender”), females (“**Female**”, number of employee SSNs, per college, who were reported with code “2” under data element “Gender”), and employees with unknown gender (“**GenUnkn**”, number of employee SSNs, per college, who were reported with code “0” under data element “Gender”).

Checksum: sum of employees in all three gender codes should = number of all employees per college.

4. Race/Ethnicity, Employee file: number of employee SSNs, per college, reported with code “1” under each of the Race/Ethnicity in fields “Ethnicity”, “Amind”, “Asian”, “Black”, “PaclIsland”, “White” (“**Amind**”, “**Asian**”, “**Black**”, “**PaclIsland**”, “**Hisp**”, “**White**”). Calculated fields to add: “Two or More Races” (“**comb**”) and “Race/Ethnicity Not Reported” (“**raceunkn**”).

Unduplicated numbers calculation steps/logic:

- i. Calculate number of Hispanics, and exclude employee SSNs with code “1” under “Hispanics” from further calculations;
- j. Of the remainder of the employee pool, calculate number of employee SSNs with code “1” in more than one race for “Two Or More Races” (e.g., both under “White” and “Black”) and exclude this category of employees from further calculation (“**comb**”);
- k. Of the remainder of the employee pool, calculate the number of employee SSNs with code “1” under “Amind”, “Asian”, “Black”, “PaclIsland”, “White”.
- l. Of the remainder, calculate the number of employee SSNs with code “0” under “Amind”, “Asian”, “Black”, “PaclIsland”, “White” for “Race/Ethnicity Not Reported” (“**racenotgiv**”).

Checksum: sum of employees in all eight race/ethnicity categories should = number of all employees per college.

5. Labels for number of employees in each type of position (“**510**”, “**520**”, “**525**”, “**530**”, “**540**”, “**550**”, “**Total**”)—needed to auto-populate resulting reports.
6. Highest Educational Achievement/Award, Employee and Position files: position codes 520, 530, 540, 550 (position file, “PositionCode”) and “Degree” (codes 0-9) from Employee file, matched by assumed key “college number + SSN”. Since one employee may be employed in more than one type of position, each position code is approached individually, to answer the question “How many employees with each type of educational achievement were employed in each college under each position type?”. Resulting fields for each position type and each type of

educational achievement should count number of employees (per college) listed under codes 0-9 in Employee file under "Degree" and under each of the "PositionCode" in the Position file, correspondingly: "p510doct" (college+ssn under code 510 in Position file and under code "1" in Highest Educational Achievement ("Degree"), Employee file); "p510edspec" (college+ssn under code 510 in Position file and under code "2" in Highest Educational Achievement ("Degree"), Employee file), etc., down to "p550degrunkn" (college+ssn under code 550 in Position file and under code "0" in Highest Educational Achievement ("Degree"), Employee file).

7. Experience in Technical Field, Employee and Position files: position code 520 ONLY (position file, "PositionCode"), Type of Employment ("EmployType", position file) and Experience in Technical Field ("Experience") in Employee file, matched by assumed key "college number + SSN". Since one employee may be employed in more than one type of employment, each employment type is approached individually, to answer the question "How many instructors (code 520) were employed under each type of employment and each type of Experience in Technical Field?". Resulting fields for each employment type and each type of Experience should count number of instructors (per college) listed under codes 0-3 in Employee file under "Experience" and under each of the "EmployType" in the Position file, correspondingly: "FTexp0" (college+ssn under code 520 in PositionCode (position file), code "1" in EmployType (full time, position file) and code "0" in Experience ("N/A", Employee file); "FTexp1" (college+ssn under code 520 in PositionCode (position file), code "1" in EmployType (full time, position file) and code "1" in Experience ("Meets Minimum Standard", Employee file); etc., down to "Adjexp3" (college+ssn under code 520 in PositionCode (position file), code "4" in EmployType (Adjunct, position file) and code "3" in Experience ("Does Not Meet Minimum Standard", Employee file);
8. Registered, Certified or Licensed, Employee and Position files: position code 520 ONLY (position file, "PositionCode"), Type of Employment ("EmployType", position file) and Registered, Certified or Licensed ("Certified") in Employee file, matched by assumed key "college number + SSN". Since one employee may be employed in more than one type of employment, each employment type is approached individually, to answer the question "How many instructors (code 520) were employed under each type of employment and each type of Registered, Certified or Licensed codes?". Resulting fields for each employment type and each type of Registration should count number of instructors (per college) listed under codes 0-2 in Employee file under "Registered" and under each of the "EmployType" in the Position file, correspondingly: "FTRegNO" (college+ssn under code 520 in PositionCode (position file), code "1" in EmployType (full time, position file) and code "0" in Registration ("No", Employee file); "FTRegYES" (college+ssn under code 520 in PositionCode (position file), code "1" in EmployType (full time, position file) and code "1" in Registration ("Yes", Employee file); etc., down to "AdjRegUnkn" (college+ssn under code 520 in PositionCode (position file), code "4" in EmployType (Adjunct, position file) and code "2" in Registration ("N/A", Employee file).
9. Total Number of Taught Arts & Science credit hours: ("fteart") sum of credit hours, per college, reported under "FTEArtScience" field in Employee file.
10. Total Number of Taught CTE credit hours: ("ftevoc") sum of credit hours, per college, reported under "FTEVoc" field in Employee file.
11. Unduplicated number of positions under each position type: ("tot510" – "tot550"), number of employees, per college, reported under each of the Position Codes ("PositionCode") fields in position file.

12. Number of positions by position and employment type (position file): (“ft510baseno” — “ad550baseno”), number of positions, per college, reported under each position code and each type of employment. For example, “ft510baseno” is the number of SSNs, precollege, reported under code 510 (administrators, type of position) and code “1” (full time, type of employment).
Checksum: sum of all positions under all types of positions/employment should = total number of records in the Position file.
13. Base Position Salary under each position and employment type (position file): (“ft510base” — “ad550base”), dollar amount, per college, reported under each position code and each type of employment. For example, “ft510base” is the total amount of base salary, per college, reported under code 510 (administrators, type of position) and code “1” (full time, type of employment) in field “BaseSalary”.
Checksum: sum of all salaries under all types of positions/employments should = total base salary per college in the Position file.
14. Position Total Compensation under each position and employment type (position file): (“ft510tot” — “ad550tot”), dollar amount of total compensation, per college, reported under each position code and each type of employment. For example, “ft510tot” is the total amount, per college, reported under code 510 (administrators, type of position) and code “1” (full time, type of employment) in field “PositionTotEarn”.
Checksum: sum of all total compensation under all types of positions/employments should = total compensation amount per college in the Position file.