The Retention and Graduation Analysis System

Overview

The University of Wisconsin System Office of Policy Analysis and Research (OPAR) routinely calculates and reports rates of student persistence (retention) and graduation within the UW System. Information on student retention and graduation appears in a variety of UW System publications and is also reported to the National Center for Education Statistics (NCES) Integrated Postsecondary Education Data System (IPEDS). OPAR also provides detailed retention and graduation tabulations to UW institutions, referred to as New Freshmen reports and Transfer reports.

Retention and graduation rates are based on student enrollment records collected through the UW System’s Central Data Request (CDR) and stored in an Oracle data warehouse. Database views perform the basic calculation of retention and/or graduation at the level of individual student records. Results from the views are aggregated and formatted prior to publication using database query and reporting tools such as Hyperion Interactive Reporting, InfoMaker, and SAS.

Database Views

There are two retention and graduation views on the Oracle data warehouse, CDR3. The name of each view reflects the fact that it analyzes retention and graduation of undergraduates on an annual basis. Each view name also provides information on the CDR submissions that are included.

uwsa.v_retgrad_ug_year Tracks retention and graduation using either Student SSN or Campus Student ID; includes all finalized CDR submissions; preferred view for retention and graduation queries.

uwsa.v_retgrad_ug_year_prod Tracks retention and graduation using either Student SSN or Campus Student ID; includes finalized and not-yet-final CDR submissions; used for preliminary retention and graduate rates.

The v_retgrad_ug_year and v_retgrad_ug_year_prod views allow the selection of the “total minus study away” population that is used for the New Freshmen reports and Transfer reports.

Retention and graduation are frequently reported for new freshmen entering full-time in fall semester. This population can be used to illustrate the different types of fields in the retention views:

- **Student identifiers**
  - The Student SSN and Campus Student ID fields reflect the values recorded with the student’s entry as part of a cohort.

- **Characteristics used to define and describe the student cohort**
  - The student cohort is defined by year, term (fall), unit, division, entrance status (new), classification (freshman), population (total minus study away), and full-time attendance.
  - The student cohort is described by year, unit, division, sex, ethnicity/citizenship, residency status, high school class rank percentile, and a variety of other characteristics.

- **Time period in which retention, transfer, remediation completion, or graduation outcome is measured**
  - The time period begins with the fall term and extends through the following summer term.

- **Retention, transfer, remediation completion, or graduation outcomes associated with the time period**
  - A student is counted as retained only if s/he is enrolled at the beginning of the time period, i.e., retained to the following fall term. A student is counted as graduated if s/he receives his/her first bachelor’s degree at any point during the time period, i.e., graduated at any time from the fall term through the following summer.
Examples of Using the Views

With the current Retention and Graduation Analysis System, analysts at UW institutions do not need to rely solely on the New Freshmen reports and the Transfer reports. Analysts with the proper authorization can work directly with the database view to:

- Reproduce information in the New Freshmen reports and the Transfer reports
- Create custom tabulations using New Freshmen report variables or the Transfer reports variables
- Join additional data for special-purpose analysis

The following examples illustrate these uses of the v_retgrad Ug_year view.

Example 1: Reproduce information in the New Freshmen reports

This example shows how an analyst can query the v_retgrad Ug_year view to reproduce the information in one of the New Freshmen report tables, “Gender by Underrepresented Minority (URM) Status.” The inner query (“A”) specifies the standard cohort and summarizes the retention and graduation outcomes by the gender and URM variables of interest. The outer query (“B”) uses analytic functions of OracleSQL to calculate retention and graduation rates.

The inner query (“A”):

```sql
/* A. Sum outcomes by crosstab grouping variables */
SELECT
  YEAR,
  TERM,
  UNIT,
  DIVISION,
  SEX,
  UNDERREPRESENTED_MINORITY,
  TIMEPERIOD,
  SUM(ENR_UGSAME_UNIT) ENR_UGSAME_UNIT,
  SUM(FIRST_BACHSAME_UNIT) FIRST_BACHSAME_UNIT,
  SUM(ENRG_UGANY_UW) ENR_UGANY_UW,
  SUM(FIRST_BACHANY_UW) FIRST_BACHANY_UW
FROM
  UWSA.V RETGRAD Ug_YEAR
WHERE
/* new freshmen retention cohort */
  CLASSIF IN ('A', 'B', 'C', 'D')
  AND ENTR STATUS='N'
  AND TERM='1'
  AND TOT_MINUS_STUDY_AWAY_FLAG='Y'
  AND TOT_MINUS_STUDY_AWAY_PART_TIME = 'N'
GROUP BY
  YEAR,
  TERM,
  UNIT,
  DIVISION,
  SEX,
  UNDERREPRESENTED_MINORITY,
  TIMEPERIOD
```
The outer query (“B”):

```sql
/* B: Calculate percent retained from cohort and cumulative percent degrees earned, within the desired grouping variables (partition) */
SELECT
    A.*,
    ENR_UG_SAME_UNIT / FIRST_VALUE(ENR_UG_SAME_UNIT) OVER (PARTITION BY YEAR, TERM, UNIT, DIVISION, SEX, UNDERREPRESENTED_MINORITY ORDER BY TIMEPERIOD) RET_RATE_SAME_UNIT,
    SUM(FIRST_BACH_SAME_UNIT) OVER (PARTITION BY YEAR, TERM, UNIT, DIVISION, SEX, UNDERREPRESENTED_MINORITY ORDER BY TIMEPERIOD) RANGE BETWEEN UNBOUNDED PRECEDING AND CURRENT ROW) CUM_GRAD_RATE_SAME_UNIT,
    ENR_UG_ANY_UW / FIRST_VALUE(ENR_UG_ANY_UW) OVER (PARTITION BY YEAR, TERM, UNIT, DIVISION, SEX, UNDERREPRESENTED_MINORITY ORDER BY TIMEPERIOD) RET_RATE_ANY_UW,
    SUM(FIRST_BACH_ANY_UW) OVER (PARTITION BY YEAR, TERM, UNIT, DIVISION, SEX, UNDERREPRESENTED_MINORITY ORDER BY TIMEPERIOD) CUM_GRAD_RATE_ANY_UW
FROM
    A
```
RANGE BETWEEN UNBOUNDED PRECEDING AND CURRENT ROW)
/
FIRST_VALUE(ENR_UG ANY_UW) over (PARTITION BY YEAR, TERM, UNIT, DIVISION, SEX, UNDERREPRESENTED_MINORITY)
ORDER BY TIMEPERIOD
)
CUM_GRAD_RATE_ANY_UW
FROM /* [Insert query “A” from above] */

Example 2: Create custom tabulations using New Freshmen report variables

The query structure from Example 1 can be used to generate custom tables using the New Freshmen report variables that appear in v_retgrad_ug_year. For example, OPAR does not produce a New Freshmen report of Gender and ACT Score. An analyst could generate such a report by taking the query from Example 1 and replacing UNDERREPRESENTED_MINORITY with ACT_COMP_SCORE. The analyst may wish to aggregate ACT scores in the inner query to look at ranges instead of individual scores. The following SELECT statement illustrates this modification. (To complete the modification to the inner query, the CASE WHEN statement needs to be repeated in the GROUP BY expression.)

/* A. Sum outcomes by crosstab grouping variables */
SELECT YEAR, TERM, UNIT, DIVISION, SEX,
(CASE WHEN ACT_COMP_SCORE>='01' AND ACT_COMP_SCORE<='15' THEN 'Less than 16'
    WHEN ACT_COMP_SCORE>='16' AND ACT_COMP_SCORE<='20' THEN '16 to 20'
    WHEN ACT_COMP_SCORE>='21' AND ACT_COMP_SCORE<='25' THEN '21 to 25'
    WHEN ACT_COMP_SCORE>='26' AND ACT_COMP_SCORE<='29' THEN '26 to 29'
    WHEN ACT_COMP_SCORE>='30' AND ACT_COMP_SCORE<='36' THEN 'Greater than 29'
    ELSE 'Not Available'
END) ACT_COMP_SCORE_RANGE,
TIMEPERIOD,
SUM(ENR_UG_SAME_UNIT) ENR_UG_SAME_UNIT,
SUM(FIRST_BACH_SAME_UNIT) FIRST_BACH_SAME_UNIT,
SUM(ENR_UG_ANY_UW) ENR_UG_ANY_UW,
SUM(FIRST_BACH_ANY_UW) FIRST_BACH_ANY_UW
Example 3: Join additional data for special-purpose analysis

The analysis component can also be used to analyze retention and graduation of special populations of interest. For example, we might wish to look at graduation rates of students from particular high schools, or transferring from WTCS institutions, or receiving certain forms of financial aid. The example below joins a table of students who graduated from Stevens Point Area High School in 2005 with the new freshmen retention cohort to produce output similar to the inner query of Example 1.

Caution: Joining data from other tables may result in queries that are very complex and take a long time to process.

```
/* A. Sum outcomes by crosstab grouping variables */
SELECT  
  RG.YEAR,  
  TERM,  
  UNIT,  
  DIVISION,  
  TIMEPERIOD,  
  SUM(ENR_UGSAME_UNIT) ENR_UGSAME_UNIT,  
  SUM(FIRST_BACHSAME_UNIT) FIRST_BACHSAME_UNIT,  
  SUM(ENR_UGANY_UW) ENR_UGANY_UW,  
  SUM(FIRST_BACHANY_UW) FIRST_BACHANY_UW  
FROM    
  UWSA.V_RETGRAD_UG_YEAR RG,  
  /* 1999 graduates of Stevens Point Area High School */  
  SELECT  
    STUDENT_SSN,  
    HS_GRAD_DATE  
  FROM    
    UWSA.STUDENT_ANALYTICAL  
  WHERE    
    HS_GRAD_FROM='502195'  
  AND HS_GRAD_DATE=2005  
  ) HS  
WHERE    
  /* new freshmen retention cohort */  
  CLASSIF IN ('A','B','C','D')  
  AND ENTR_STATUS='N'  
  AND TERM='1'  
  AND TOT_MINUS_STUDY_AWAY_FLAG='Y'  
  AND TOT_MINUS_STUDY_AWAY_PART_TIME = 'N'  
  /* students from the high school */  
  AND HS_GRAD_DATE=FLOOR(RG.YEAR/100)  
  AND HS.STUDENT_SSN=RG.STUDENT_SSN  
GROUP BY  
  RG.YEAR,  
  TERM,  
  UNIT,  
  DIVISION,  
  TIMEPERIOD  
```

Field Definitions

The fields in the retention and graduation analysis views are documented below. When the field is defined in the Central Data Request (CDR) Manual, the CDR Data Element number (DE) is referenced. When the field is defined in other OPAR documents, the filename and location of the document is referenced. When the value of a field depends on other fields in the views, then those other fields are referenced in CAPITAL letters.

<table>
<thead>
<tr>
<th>Field by Category</th>
<th>Description, CDR Data Element (DE #), or other reference source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Student identifier</strong></td>
<td></td>
</tr>
<tr>
<td>STUDENT_SSN</td>
<td>DE 2010</td>
</tr>
<tr>
<td>CAMPUS_STUDENT_ID</td>
<td>DE 2012</td>
</tr>
<tr>
<td><strong>Characteristics used to define and/or describe the student cohort</strong></td>
<td></td>
</tr>
<tr>
<td>YEAR</td>
<td>The academic year, expressed as a six-digit integer. Ex: 199900</td>
</tr>
<tr>
<td>TERM</td>
<td>The academic term, expressed as a character. The values of this field are currently restricted to fall ('1') and spring ('2') terms.</td>
</tr>
<tr>
<td>UNIT</td>
<td>DE 2160</td>
</tr>
<tr>
<td>DIVISION</td>
<td>DE 2170</td>
</tr>
<tr>
<td>ENTR_STATUS</td>
<td>DE 2240. The values of this field are currently restricted to new ('N'), re-entry ('R'), transfer ('T'), and re-entry/transfer ('S').</td>
</tr>
<tr>
<td>CLASSIF</td>
<td>DE 2210. The values of this field are currently restricted to degree-seeking undergraduates ('A', 'B', 'C', or 'D').</td>
</tr>
<tr>
<td>TOT_MINUS_STUDY_AWAY_FLAG</td>
<td>“Overview of CDR Views,” <a href="http://www.uwsa.edu/opar/cdr/views/overview.pdf">link</a></td>
</tr>
<tr>
<td>TOT_MINUS_STUDY_AWAY_PART_TIME</td>
<td>“Overview of CDR Views,” <a href="http://www.uwsa.edu/opar/cdr/views/overview.pdf">link</a></td>
</tr>
<tr>
<td>IPEDS_FLAG</td>
<td>“Overview of CDR Views,” <a href="http://www.uwsa.edu/opar/cdr/views/overview.pdf">link</a></td>
</tr>
<tr>
<td>IPEDS_PART_TIME</td>
<td>“Overview of CDR Views,” <a href="http://www.uwsa.edu/opar/cdr/views/overview.pdf">link</a></td>
</tr>
<tr>
<td>SEX</td>
<td>DE 2020</td>
</tr>
<tr>
<td>RES_STATUS</td>
<td>DE 2220</td>
</tr>
<tr>
<td>ACT_COMP_SCORE</td>
<td>DE 2150</td>
</tr>
<tr>
<td>HS_CLASS_RANK_PCT</td>
<td>DE 2105</td>
</tr>
<tr>
<td>AGE</td>
<td>“Overview of CDR Views,” <a href="http://www.uwsa.edu/opar/cdr/views/overview.pdf">link</a></td>
</tr>
<tr>
<td>ETHNICITY_CITIZENSHIP_UNDUP</td>
<td>“Overview of CDR Views,” <a href="http://www.uwsa.edu/opar/cdr/views/overview.pdf">link</a></td>
</tr>
<tr>
<td>ETHNICITY_CITIZEN_UNDUP_HISP</td>
<td>“Overview of CDR Views,” <a href="http://www.uwsa.edu/opar/cdr/views/overview.pdf">link</a></td>
</tr>
<tr>
<td>UNDERREPRESENTED_MINORITY</td>
<td>“Overview of CDR Views,” <a href="http://www.uwsa.edu/opar/cdr/views/overview.pdf">link</a></td>
</tr>
<tr>
<td>Field Name</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| IMMED_NEW_FRESH            | This computed field indicates whether the student entered as a New Freshman in the fall semester immediately following the student’s graduation from high school. This field has a value of ‘Y’ if all of the following conditions are met; otherwise the field has a value of ‘N’:  
  - The TERM of the student is the fall term (‘1’).  
  - The ENTR_STATUS of the student is ‘N’  
  - The CLASSIF of the student is ‘A’, ‘B’, ‘C’, or ‘D’. The high school graduation date (DE 2120) of the student is equal to the calendar year that begins the academic year indicated by YEAR. For example, if YEAR is 199900, then high school graduation date must equal 1999. |
| REM_ENGL_REQ_NF            | DE 2235 with minor recoding. When the student is a new freshmen and DE equals ‘Y’, this field is ‘Y’. When the student is a new freshmen and DE does not equal ‘Y’, this field is ‘N’. All other students have a value of null for this field. |
| REM_MATH_REQ_NF            | DE 2230 with minor recoding. When the student is a new freshmen and DE equals ‘Y’, this field is ‘Y’. When the student is a new freshmen and DE does not equal ‘Y’, this field is ‘N’. All other students have a value of null for this field. |
| FIN_AID_CATEGORY           | This computed field indicates what category of financial aid the student received in the first academic year of enrollment. (Aid received only in summer term is not used to derive this field.) Students who receive Pell grants (fin_aid_type (DE 2400)='24') are assigned a value of ‘1’. Students who did not receive Pell grants and who received subsidized direct loans (fin_aid_type ‘56’ or ‘91’) are assigned a value of ‘2’. All other students are assigned a value of ‘3’.

**Time period in which retention, transfer, remediation completion, or graduation outcome is measured**

**TIMEPERIOD**

This computed field indicates the number of years that have elapsed since the student enrolled as part of the cohort.

The year indicated by TIMEPERIOD begins with the term indicated by TERM and includes subsequent terms prior to the TERM in the following year. For example:

- If TERM is the fall term ('1'), TIMEPERIOD begins with the fall term and includes all terms through the following summer term ('S'). This is the situation used in the standard retention and graduation reports.
- If TERM is the spring term ('2'), TIMEPERIOD begins with the spring term and includes all terms through the following winter term ('W').

Values for TIMEPERIOD are positive integers (1, 2, 3, ...). A value of 1 represents student activity occurring within the one-year period that begins with YEAR and TERM. A value of 2 represents student activity during the subsequent year, and so on. For example, when YEAR is 199900 and TERM is '1', then:
- TIMEPERIOD = 1 represents activity beginning fall 199900 and ending summer 200001.
- TIMEPERIOD = 2 represents activity beginning fall 200001 and ending summer 200102.

Enrollment, transfer, remediation completion, and/or degree activity is tracked until the student earns a bachelor’s degree from the same institution at which the student entered. Enrollment, transfer, remediation completion, or degree activity after that point is not included. For example:

- The student enrolled as part of the fall 1999-00 cohort at UW-Stout, and subsequently enrolled at UW-Stout in the fall terms of 2000-01, 2001-02, 2002-03. Records with TIMEPERIOD equal to 1, 2, 3, and 4 exist for this student.
- The student received a bachelor’s degree from UW-Stout in the spring term of 2002-03. A record with TIMEPERIOD = 4 exists for this student.
- The student subsequently enrolled as an undergraduate at UW-Stout in fall 2003-04. No record with TIMEPERIOD = 5 exists for this student, since the student has already received a bachelor’s degree from UW-Stout.

**Retention, transfer, remediation completion, or graduation outcomes associated with the time period**

**ENR_UGSAME_UNIT**

This computed field indicates, as of the beginning of the TIMEPERIOD, whether or not the student has been retained as an undergraduate at the same institution where the student started.

This field has a value of 1 if all of the following conditions are met; otherwise, the field has a value of 0:

- The student is enrolled in the same term as indicated by TERM of the year indicated by TIMEPERIOD.
- The term of the year indicated by TIMEPERIOD is not later than the term in which the student earned a bachelor’s degree as indicated by FIRST_BACHSAME_UNIT.
- In the term of the year indicated by TIMEPERIOD, the student is enrolled with an undergraduate classification (DE 2210). Undergraduate classification is defined as 'A', 'B', 'C', 'D', 'T', 'J', 'N', 'S', or 'T'.
- In the term of the year indicated by TIMEPERIOD, the student is enrolled at the same institution as indicated by UNIT.
**FIRST_BACHSAME_UNIT**  
This computed field indicates whether or not the student earned a bachelor’s degree for the first time from the same institution where the student started.

This field has a value of 1 if **all** of the following conditions are met; otherwise, the field has a value of 0:

- The student received a bachelor’s degree during any term falling within the year indicated by TIMEPERIOD.
- The student received a bachelor’s degree from the same institution as indicated by UNIT.
- The student did not receive a bachelor’s degree during an earlier TIMEPERIOD from the same institution as indicated by UNIT.

**ENR_UG_ANY_UW**  
This computed field indicates, as of the beginning of the TIMEPERIOD, whether or not the student has been retained as an undergraduate at any UW institution.

This field has a value of 1 if **all** of the following conditions are met; otherwise, the field has a value of 0:

- The student is enrolled in the same term as indicated by TERM of the year indicated by TIMEPERIOD.
- The term of the year indicated by TIMEPERIOD is not later than the term in which the student earned a bachelor’s degree as indicated by FIRST_BACH_ANY_UNIT.
- In the term of the year indicated by TIMEPERIOD, the student is enrolled with an undergraduate classification (DE 2210). Undergraduate classification is defined as 'A', 'B', 'C', 'D', 'P', 'J', 'N', 'S', or 'T'.
- The student is enrolled at any UW institution.

**FIRST_BACH_ANY_UW**  
This computed field indicates whether or not the student earned a bachelor’s degree for the first time from any UW institution.

This field has a value of 1 if **all** of the following conditions are met; otherwise, the field has a value of 0:

- The student received a bachelor’s degree during any term falling within the year indicated by TIMEPERIOD.
- The student did not receive a bachelor’s degree during an earlier TIMEPERIOD from any UW institution.

**COMPL_ENGL REM_REQ**  
This computed field indicates whether or not the student completed English remediation requirements for the first time at the same institution where the student started.

This field has a value of 1 if **all** of the following conditions are met; otherwise, the field has a value of 0:

- The student is a new freshman and requires English remediation.
- The student completed English remediation requirements during any term falling within the year indicated by TIMEPERIOD. For students entering in fall term who are also enrolled in the preceding summer, English remediation completion in the preceding summer is incorporated into TIMEPERIOD=1.
- The student completed English remediation requirements at the same institution as indicated by UNIT.
- The student did not complete English remediation requirements during an earlier TIMEPERIOD at the same institution as indicated by UNIT.
- The student did not receive a bachelor’s degree during an earlier term from the same institution as indicated by UNIT.
COMPL_MATH_REM_REQ This computed field indicates whether or not the student completed Math remediation requirements for the first time at the same institution where the student started.

This field has a value of 1 if all of the following conditions are met; otherwise, the field has a value of 0:
- The student is a new freshman and requires Math remediation.
- The student completed Math remediation requirements during any term falling within the year indicated by TIMEPERIOD. For students entering in fall term who are also enrolled in the preceding summer, Math remediation completion in the preceding summer is incorporated into TIMEPERIOD=1.
- The student completed Math remediation requirements at the same institution as indicated by UNIT.
- The student did not complete Math remediation requirements during an earlier TIMEPERIOD at the same institution as indicated by UNIT.
- The student did not receive a bachelor’s degree during an earlier term from the same institution as indicated by UNIT.

FIRST_ASSOC_SAME_UNIT This computed field indicates whether or not the student earned an associate’s degree for the first time from the same institution where the student started.

This field has a value of 1 if all of the following conditions are met; otherwise, the field has a value of 0:
- The student received an associate’s degree during any term falling within the year indicated by TIMEPERIOD.
- The student received an associate’s degree from the same institution as indicated by UNIT.
- The student did not receive a bachelor’s degree or an associate’s degree during an earlier term from the same institution indicated by UNIT.

FIRST_TRANS_DIFF_UNIT This computed field indicates whether or not the student transferred to a different institution for the first time from the institution where the student started.

This field has a value of 1 if all of the following conditions are met; otherwise, the field has a value of 0:
- The student has an entrance status (DE 2240) of ‘T’ during any term falling within the year indicated by TIMEPERIOD.
- In the term when the student has an entrance status of ‘T’, the student is enrolled as an undergraduate at an institution different from the institution indicated by UNIT. Undergraduate classification (DE 2210) is defined as 'A', 'B', 'C', 'D', 'I', 'J', 'N', 'S', or 'T'.
- The student did not receive a bachelor’s degree during an earlier term from any UW institution.
- The student did not transfer to a different institution during an earlier TIMEPERIOD.