Common Data Set Preparation using R

Nov 9, 2017
CAIR Conference

Alexis Furuichi, Sunny Moon
40,439 Students Enrolled/largest in CSU
34,800 Undergraduate Students
4,437 First-Time Freshmen
3,755 New Transfers
45% UG Students - Pell Recipients
58% UG Students 1st gen college students
Cal State Fullerton at a Glance
Fall 2017

Ethnic Composition

- Hispanic: 40.8%
- White: 20.4%
- Asian: 20.5%
- Unknown: 4.1%
- Multi: 4.2%
- Amlnd: 0.1%
- Black: 2.0%
- Intl: 7.8%
- Pacific Islander: 0.2%

Entering Characteristics Composition

- First-time Freshmen: 47%
- Transfers: 39%
- Grad: 14%
- Other: 0%
Cal State Fullerton at a Glance
Fall 2017

- Average High School GPA of First-Time Freshmen: 3.63
- Average SAT of First-Time Freshmen: 1101
- Average Transfer GPA: 3.28
- Average Age of Undergraduates: 22
<table>
<thead>
<tr>
<th>YEAR</th>
<th>BACHELOR'S DEGREES</th>
<th>MASTER'S DEGREES</th>
<th>DOCTORAL DEGREES</th>
<th>TOTAL DEGREES</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016-2017</td>
<td>8450</td>
<td>2038</td>
<td>42</td>
<td>10530</td>
</tr>
<tr>
<td>2015-2016</td>
<td>8397</td>
<td>1868</td>
<td>47</td>
<td>10312</td>
</tr>
<tr>
<td>2014-2015</td>
<td>7725</td>
<td>1667</td>
<td>62</td>
<td>9454</td>
</tr>
<tr>
<td>2013-2014</td>
<td>7451</td>
<td>1476</td>
<td>59</td>
<td>8986</td>
</tr>
<tr>
<td>2012-2013</td>
<td>7472</td>
<td>1566</td>
<td>26</td>
<td>9064</td>
</tr>
<tr>
<td>2011-2012</td>
<td>6724</td>
<td>1563</td>
<td>19</td>
<td>8306</td>
</tr>
<tr>
<td>2010-2011</td>
<td>6875</td>
<td>1562</td>
<td>11</td>
<td>8448</td>
</tr>
<tr>
<td>2009-2010</td>
<td>6481</td>
<td>1394</td>
<td>7</td>
<td>7882</td>
</tr>
<tr>
<td>2008-2009</td>
<td>6580</td>
<td>1421</td>
<td></td>
<td>8001</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>YEAR</th>
<th>BACHELOR'S DEGREES</th>
<th>MASTER'S DEGREES</th>
<th>DOCTORAL DEGREES</th>
<th>TOTAL DEGREES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1969-1970</td>
<td>1750</td>
<td>419</td>
<td></td>
<td>2169</td>
</tr>
<tr>
<td>1968-1969</td>
<td>1465</td>
<td>297</td>
<td></td>
<td>1762</td>
</tr>
<tr>
<td>1967-1968</td>
<td>1182</td>
<td>223</td>
<td></td>
<td>1405</td>
</tr>
<tr>
<td>1966-1967</td>
<td>860</td>
<td>166</td>
<td></td>
<td>1026</td>
</tr>
<tr>
<td>1965-1966</td>
<td>652</td>
<td>124</td>
<td></td>
<td>776</td>
</tr>
<tr>
<td>1964-1965</td>
<td>517</td>
<td>47</td>
<td></td>
<td>564</td>
</tr>
<tr>
<td>1963-1964</td>
<td>401</td>
<td>8</td>
<td></td>
<td>409</td>
</tr>
<tr>
<td>1962-1963</td>
<td>301</td>
<td>0</td>
<td></td>
<td>301</td>
</tr>
<tr>
<td>1961-1962</td>
<td>220</td>
<td>0</td>
<td></td>
<td>220</td>
</tr>
<tr>
<td>1960-1961</td>
<td>65</td>
<td>0</td>
<td></td>
<td>65</td>
</tr>
</tbody>
</table>

**TOTALS:**

<table>
<thead>
<tr>
<th>BACHELOR'S DEGREES</th>
<th>MASTER'S DEGREES</th>
<th>DOCTORAL DEGREES</th>
<th>TOTAL DEGREES</th>
</tr>
</thead>
<tbody>
<tr>
<td>223,610</td>
<td>46,932</td>
<td>273</td>
<td>270,815</td>
</tr>
</tbody>
</table>
Common Data Set Initiative

• Collaborative Efforts between Publishers and the educational community.

• Institutional Reporting
  – Chancellor’s Office
  – Federal Reporting
  – Surveys: External Organizations
    • US News & WR, College Board, NSF/GSS,
    • CGS/GRE, Peterson, Barren’s, Wintergreen, Princeton Review
About Presenters – Alexis

Ph.D. Sociology
• Statistician/Project Coordinator
• Evaluation Analyst

Data & Stat Consultant
• Research Analyst

http://asfuruichi.wixsite.com/furuichi
Evolution of CDS Preparation

- SPSS syntax => SPSS output => Excel
- SPSS macro => R tables => LaTeX => PDF output
- SPSS macro => R tables => PDF output
- R codes => R tables => PDF output

R packages
  Knitr
  ReportRs
CDS Output Components

- Headers (levels)
- Texts
- Tables
- In-text numbers
Headers

B. Enrollment and Persistence

Institutional Effectiveness
Fall 2016

Common Data Set 2016-2017

Graduation Rates
For Bachelor’s Programs
Fall 2009 Cohort
Document Title:

---
title: "B. ENROLLMENT AND PERSISTENCE"
author: "Institutional Effectiveness"
date: "Fall 2016"

Page Header:

---

Output:

- html_document: default
- pdf_document: default
- word_document: default

--head includes: 
- \usepackage{fancyhdr}
- \pagestyle{fancy}
- \fancyhf{}
- \chead{Common Data Set 2016-2017}

---

# Graduation Rates
## For Bachelor's Programs
### Fall 2009 Cohort
### B1. Institutional Enrollment - Men and Women

<table>
<thead>
<tr>
<th>X</th>
<th>FT(men)</th>
<th>FT(women)</th>
<th>PT(men)</th>
<th>PT(women)</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-time Fresh</td>
<td>1764</td>
<td>2510</td>
<td>68</td>
<td>84</td>
</tr>
<tr>
<td>Other Fresh</td>
<td>759</td>
<td>879</td>
<td>80</td>
<td>60</td>
</tr>
<tr>
<td>Other Deg</td>
<td>9670</td>
<td>12343</td>
<td>2941</td>
<td>3258</td>
</tr>
<tr>
<td>Total Deg</td>
<td>12193</td>
<td>15732</td>
<td>3089</td>
<td>3402</td>
</tr>
<tr>
<td>Other UG</td>
<td>20</td>
<td>49</td>
<td>30</td>
<td>61</td>
</tr>
<tr>
<td>Total UG</td>
<td>12213</td>
<td>15781</td>
<td>3119</td>
<td>3463</td>
</tr>
<tr>
<td>FT Grad</td>
<td>353</td>
<td>792</td>
<td>382</td>
<td>527</td>
</tr>
<tr>
<td>Other Grad</td>
<td>601</td>
<td>867</td>
<td>956</td>
<td>1177</td>
</tr>
<tr>
<td>Other cred</td>
<td>NA</td>
<td>NA</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Total Grad</td>
<td>954</td>
<td>1659</td>
<td>1339</td>
<td>1707</td>
</tr>
</tbody>
</table>

Total all undergraduates: 34576.
Total all graduate: 5659.
GRAND TOTAL ALL STUDENTS: 40235.
### B1. Institutional Enrollment - Men and Women

```r
## Institutional Enrollment - Men and Women

```r

```r
# Total all undergraduates: `r totalUG`.
Total all graduates: `r totalG`.
GRAND TOTAL ALL STUDENTS: `r grandTotal`.
```
Another Example - PPR

APPENDIX I. UNDERGRADUATE DEGREE PROGRAMS

TABLE 1. Undergraduate Program Applications, Admissions, and Enrollments
For each undergraduate degree program, a table will be provided with the number of student applications, number of students admitted, percent admitted, the number of new enrollments, and the percentage of new enrollments. Percentage of students enrolled is the number of students enrolled divided by the number of students admitted or the yield rate.

<table>
<thead>
<tr>
<th>Academic Year</th>
<th># Applied</th>
<th># Admitted</th>
<th>% Admitted</th>
<th># Enrolled</th>
<th>% Enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-2013</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013-2014</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014-2015</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015-2016</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016-2017</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TABLE 1-A. First-time Freshmen: Program Applications, Admissions, and Enrollments

<table>
<thead>
<tr>
<th>Academic Year</th>
<th>AY</th>
<th>applied</th>
<th>admitted</th>
<th>pctAdmitted</th>
<th>enrolled</th>
<th>pctEnrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-2013</td>
<td>2012-2013</td>
<td>95</td>
<td>83</td>
<td>87.4</td>
<td>16</td>
<td>19.3</td>
</tr>
<tr>
<td>2013-2014</td>
<td>2013-2014</td>
<td>132</td>
<td>99</td>
<td>75.0</td>
<td>12</td>
<td>12.1</td>
</tr>
<tr>
<td>2014-2015</td>
<td>2014-2015</td>
<td>109</td>
<td>77</td>
<td>70.6</td>
<td>8</td>
<td>10.4</td>
</tr>
<tr>
<td>2015-2016</td>
<td>2015-2016</td>
<td>121</td>
<td>93</td>
<td>76.9</td>
<td>17</td>
<td>18.3</td>
</tr>
</tbody>
</table>

TABLE 1-B. Upper Division Transfers: Program Applications, Admissions, and Enrollments

<table>
<thead>
<tr>
<th>Academic Year</th>
<th>AY</th>
<th>applied</th>
<th>admitted</th>
<th>pctAdmitted</th>
<th>enrolled</th>
<th>pctEnrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-2013</td>
<td>2012-2013</td>
<td>25</td>
<td>17</td>
<td>68.0</td>
<td>1</td>
<td>5.88</td>
</tr>
<tr>
<td>2013-2014</td>
<td>2013-2014</td>
<td>33</td>
<td>11</td>
<td>33.3</td>
<td>3</td>
<td>27.27</td>
</tr>
<tr>
<td>2015-2016</td>
<td>2015-2016</td>
<td>37</td>
<td>21</td>
<td>56.8</td>
<td>6</td>
<td>28.57</td>
</tr>
<tr>
<td>2016-2017</td>
<td>2016-2017</td>
<td>46</td>
<td>31</td>
<td>67.4</td>
<td>12</td>
<td>38.71</td>
</tr>
</tbody>
</table>
---
title: "PPR Tables Chemistry (Biochemistry BS; Chemistry BA, BS, MA, & MS)"
author: "Institutional Research and Analytical Studies"
date: "Summer 2017"
output:
  word_document:
    reference_docx: word-styles-reference-01.docx
---
```
# APPENDIX I. UNDERGRADUATE DEGREE PROGRAMS
## TABLE 1. Undergraduate Program Applications, Admissions, and Enrollments
### TABLE 1-A. First-time Freshmen: Program Applications, Admissions, and Enrollments
```
```
mainDir <- "M:/sfuruichi/PPR/2017-2018/Chemistry"
setwd(mainDir)
```
```
library(knitr)
kable(t1A)
```
```
### TABLE 1-B. Upper Division Transfers: Program Applications, Admissions, and Enrollments
```
```
library(knitr)
kable(t1B)
```
```
---
R (3.2.2) in SPSS (v.24)

```
begin program R.
mainDir <- "M:/sfuruichi/surveys/CDS/set2/output/2016"
setwd(mainDir)
#B1
library(xtable)
rm(list = ls())
B1 <- read.csv("temp/B1.csv")
FTmen <- subset(B1, B1$fullpart=='Full-time' & B1$sexCDS=='Men', select = c(grp4b1,freq))
write.table(l3t,file = "excel/CDSI3.csv",sep="","row.names = FALSE, col.names = TRUE)
text3 <- xtable(l3t)
align(text3) <- "llr"
print.xtable(text3,file="latex/l3.tex",include.colnames = FALSE, include.rownames = FALSE)
end program.
```
B. ENROLLMENT AND PERSISTENCE

B1. Institutional Enrollment - Men and Women

Provide numbers of students for each of the following categories as of the institutions official fall reporting date or as of October 15, 2016. Note: Report students formerly designated as first professional in the graduate cells.

<table>
<thead>
<tr>
<th>Category</th>
<th>FTmen</th>
<th>FTwomen</th>
<th>PTmen</th>
<th>PTwomen</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-time Fresh</td>
<td>1873</td>
<td>2414</td>
<td>63</td>
<td>51</td>
</tr>
<tr>
<td>Other Fresh</td>
<td>853</td>
<td>924</td>
<td>71</td>
<td>63</td>
</tr>
<tr>
<td>Other Deg</td>
<td>9160</td>
<td>11812</td>
<td>2724</td>
<td>3001</td>
</tr>
<tr>
<td>Total Deg</td>
<td>11886</td>
<td>15150</td>
<td>2858</td>
<td>3115</td>
</tr>
<tr>
<td>Other UG</td>
<td>28</td>
<td>41</td>
<td>18</td>
<td>48</td>
</tr>
<tr>
<td>Total UG</td>
<td>11914</td>
<td>15191</td>
<td>2876</td>
<td>3163</td>
</tr>
<tr>
<td>FT Grad</td>
<td>428</td>
<td>776</td>
<td>419</td>
<td>550</td>
</tr>
<tr>
<td>Other Grad</td>
<td>705</td>
<td>843</td>
<td>991</td>
<td>1080</td>
</tr>
<tr>
<td>Other cred</td>
<td>5</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Grad</td>
<td>1133</td>
<td>1619</td>
<td>1415</td>
<td>1637</td>
</tr>
</tbody>
</table>

Total all undergraduates: 33144
Total all graduate: 5804
GRAND TOTAL ALL STUDENTS: 38948
LaTeX Preamble
LaTex Codes

\center\\textbf{B. \ ENROLLMENT AND PERSISTENCE}\\
\raggedright\\
\begin{doublespace}\\
\textbf{B1. Institutional Enrollment - Men and Women}\\
\end{doublespace}

Provide numbers of students for each of the following categories as of the inst students formerly designated as “first professional” in the graduate cells.\\
\begin{spacing}{1.5}\\
\end{spacing}\\
\begin{table}![htbp]
\centering
\input{filepath/B1.tex}\\
\end{table}\\
\begin{spacing}{1.5}\\
\end{spacing}\\
\begin{tabular}{lr}
Total all undergraduates: & \underline{\input{filepath/B1TotUG.txt}}\\
Total all graduate: & \underline{\input{filepath/B1TotG.txt}}\\
GRAND TOTAL ALL STUDENTS: & \underline{\input{filepath/B1GrandTot.txt}}\\
\end{tabular}
define !prepCDS (dig2Yr = !cmdend)
   cd !quote(!concat('M:\sfuruichi\surveys\CDS\20',!dig2Yr,'-2018\output')).

***B1 file.
match files file = !quote(!concat('M:\ras\sper\sper',!dig2Yr,'.sav')) /in = sperfile
/table = !quote(!concat('M:\RAS\Historical Data\ERSR094',!dig2Yr,'.sav'))) /in= racefile
/by ssn
/keep = cwid ssn sex age eth eth4mr eth1 eth2 eth3 eth4 eth5 multrace ipedsethnic recode enstat ldegobj stustan acadplan1 units categor5 yrtrm1 race1 to race5 ftpt.

dataset name sperrace.
execute.

dataset activate sperrace.
if (eth4mr = 4) and (eth = '6') Race5 = 624.
if (eth4mr = 4) and (eth = 'H') Race5 = 601.

dataset activate L3.
save translate /type = csv /outfile = 'L3.csv'.
dataset close B1.

dataset close all.

enddefine.
Running SPSS Macro

```plaintext
***create base files.
insert file = 'M:\sfuruichi\surveys\CDS\2017-2018\CDS.sps'.
!prepCDS dig2Yr = 17.

insert file = 'M:\sfuruichi\surveys\CDS\set2\program\CDSsecJ.sps'.
!prepCDSsecJ dig2Yr = 16.

insert file = 'M:\sfuruichi\surveys\CDS\set2\program\CDSsecF.sps'.
!prepCDSsecF dig2Yr = 16.

dataset close all.

***create outputs.
insert file = 'M:\sfuruichi\surveys\CDS\set2\program\CDSR.sps'.
insert file = 'M:\sfuruichi\surveys\CDS\set2\program\CDSRsecJ.sps'.
insert file = 'M:\sfuruichi\surveys\CDS\set2\program\CDSRsecF.sps'.
```
Thank you!

http://www.fullerton.edu/analyticalstudies/
Sunny Moon: hmoon@fullerton.edu
Alexis Furuichi: sfuruichi@fullerton.edu
http://asfuruichi.wixsite.com/furuichi