

Degree Data for All: A Web Report Studio® Reporting Solution

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ABSTRACT

Timely, informative information is a core precept of Institutional Research offices. In an effort to meet this objective, a new degree application was created using the SAS Enterprise BI Server software suite. Previous degree reports were static .pdf files with no graph or trend details. The new Degree application development initiative utilized SAS Enterprise Guide®, Information Map Studio®, Information Delivery Portal®, and Web Report Studio® (WRS). End users now have a full range of aggregate data views, including graphs and trends of all degrees awarded at the university. This presentation will detail the development, testing and release of the WRS Degree solution.

WHO WE ARE

Mission

The mission of the Office of Institutional Research is to provide information of the highest quality and which is both timely and easily accessible, and to facilitate and enhance decision-making, strategic planning, and assessment at the University of Central Florida.

Purpose

Institutional Research (IR) provides electronic and web-based dissemination of official information to the University community (including the Board of Trustees, the various colleges, departments and other academic and administrative units), external agencies, and the Florida Board of Governors (BOG). IR generates, supervises or develops all official University data reports and state-required reports, as well as providing end-user data solutions and training to facilitate decision-making processes. The director and staff serve on numerous university-wide committees and workgroups and assist with the collection and interpretation of institutional data, assist in planning academic programs, and participate in the implementation of evaluative procedures. The functions of the office support the entire university enterprise.

Background

Institutional Research has, as one of its primary objectives, the task of developing and implementing a university data warehouse. This enterprise-wide data system facilitates the creation, access, and dissemination, by internal and external stakeholders, of institutional knowledge pertinent to the university. In collaboration with the data warehouse project stakeholder group, which represents a cross-section of key data users, the IR staff has established a data source of fourteen years' worth of student reporting data. This warehouse of information serves as the foundation for the development of a wide variety of reporting applications using SAS Business Intelligence software.

INTRODUCTION

Reports detailing the number of degrees and details about those degrees have always been available to our end-users via static .pdf files. However, those reports were limited in their functionality and didn't provide trend data. The new Degree application development initiative utilized SAS Enterprise Guide®, Information Map Studio®, Information Delivery Portal®, and Web Report Studio® (WRS) to provide a new set of web reports. End users now have a full range of aggregate data views, including graphs and trends of all degrees awarded at the university, as well as the opportunity to select the preferred prompt-based information.

The production version of the Web Report Studio Degree Profile was still under development at the time of this paper. The author intends to include the final output and a demonstration of the final design at the conference.

FUNCTIONAL REQUIREMENTS

Functional business analysts discussed possible functionality and end-user capabilities that should be available through an application that displays degree data. Web Report Studio was identified as a software solution that could meet the majority of the requested specifications. A specification document was created to guide the technical development.

One major requirement was for degree data to be live (within a week) and not be based upon our traditional university census data files. Previously, each data file was created two months after the end of each semester. Due to the operational nature of

the data, the functional team determined that nearly live data would be a better representation of the degrees awarded figures.

A second major requirement surrounded the view structure for the application. Functional users wanted to view aggregate data by university or college or major. The time dimension should also be determined by the user (i.e. view a single term, an entire academic year, a full university history). Many of the requested functionalities were also available through OLAP Cube design. However, ease of use and limited training opportunities directed development into the WRS environment.

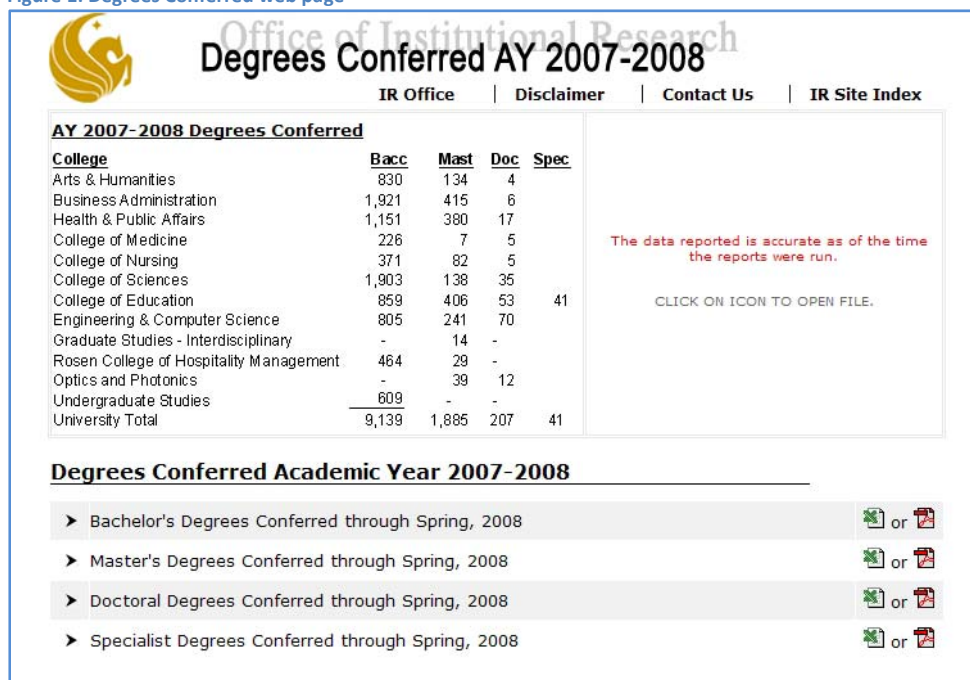
A third requirement asked that the degree names and college names appear as they are today (or future report dates). For example, if a new college is created and “owns” majors previously housed in other colleges, the report should list the new college name and all degrees ever issued by any majors “owned” regardless of the specific college in which the major had previously been housed.

The final major functional requirement surrounded graphs and trends. Based upon the end-user inputs, output would contain graphs and trending data where appropriate. This will be entirely new functionality for our degree reports and will be a welcome enhancement for the end-user.

PREVIOUS STATIC REPORT DESIGN

The previous applications used for degree reporting were simple static .pdf web pages. Figure 1 demonstrates the web page that “hosts” the .pdf files. The web page did provide a quick view of the number overall degrees conferred during the specific academic year, but didn’t provide the user with any graph or trend information.

Figure 1: Degrees Conferred web page



The individual report (Figure 2 – Bachelor’s Degrees) was a static .pdf file that was accurate as of the posting date. The level of work required to continually update the .pdf files was prohibitive. The table did include degrees since inception, the most recent academic year and a break-down of the current year degrees, plus a gender split.

An additional challenge occurred whenever a degree program was either renamed or reorganized into a new college. The historical static files were never updated to incorporate the new name or college location. This lack of consistency over time made it difficult for end-users to track individual degree programs.

Figure 2: Degrees Conferred .pdf file

UNIVERSITY OF CENTRAL FLORIDA																
Summary of Baccalaureate Degrees Conferred by College ¹ , Major & Gender																
CIP Code	Major Code	COLLEGE/Discipline	AY 1968-69 through 2005-2006	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	TOTAL TO DATE
COLLEGE OF ARTS & HUMANITIES																
10.0104	0605	Film	195	0	0	0	0	0	0	0	0	0	0	0	0	195
13.1312	0832	Music Education	251	5	8	13	1	0	1	3	0	3	1	3	4	272
16.0101	1101	Foreign Lang. Combination-BA	117	1	4	5	0	0	0	0	1	1	0	1	1	124
16.0901	1102	French	193	0	5	5	0	1	1	0	2	2	0	3	3	204
16.0905	1105	Spanish	361	9	13	22	1	1	2	2	10	12	3	9	12	409
23.0101		English	2,176	64	111	175	16	38	54	21	26	47	32	62	94	2,546
24.0103		Humanities	403	8	18	26	1	3	4	6	4	10	4	8	12	465
38.0101	1509	Philosophy	298	10	9	19	5	0	5	6	0	6	9	0	9	337
38.0201	1525	Religious Studies	0	1	0	1	0	0	0	1	0	1	6	5	11	13
50.0501	1007	Theater Studies	428	10	18	28	0	12	12	0	4	4	2	12	14	486
50.0501		Theater (BFA)	156	14	11	25	2	2	4	3	6	9	5	5	10	204
50.0602		Film (BFA)	418	20	9	29	3	0	3	1	0	1	10	10	20	471
50.0602		Motion Picture (BA)	0	15	14	29	3	1	4	13	7	20	13	11	24	77
50.0602	0607	Art-BA (Animation)	0	1	0	1	0	0	0	0	0	0	0	0	0	1
50.0605	0010	Photography AS to BS	8	2	7	9	0	1	1	1	2	3	3	9	12	33
50.0701		Art (BA)	1,369	18	25	43	3	5	8	3	12	15	4	12	16	1,461
50.0702		Art (BFA)	471	30	28	58	3	1	4	7	15	22	16	22	38	593
50.0706		Digital Media	333	93	38	131	17	5	22	28	5	33	57	21	78	597
50.0903		Music	332	6	13	19	2	0	2	5	6	11	8	7	15	379
54.0101	2205	History	1,410	70	55	125	22	14	36	26	13	39	37	18	55	1,665
College Totals			8,919	377	386	763	79	84	163	126	113	239	210	218	428	10,512
COLLEGE OF BUSINESS ADMINISTRATION																
45.0601	0531	Economics - BA	16	7	5	12	5	0	5	6	1	7	6	2	8	48
52.0101		General Business Admin.	4,078	109	87	196	23	24	47	40	30	70	36	35	71	4,462
52.0201		Management	6,474	197	165	362	51	46	97	61	46	107	104	69	173	7,213
52.0301		Accounting - BSBA	5,957	162	191	353	50	56	106	69	73	142	59	72	131	6,699
52.0601		Economics - BSBA	564	30	12	42	6	3	9	7	5	12	18	9	27	664
52.0601		Finance	6,305	282	173	455	79	33	112	80	43	123	134	76	210	7,205
52.1201	0515	Mgmt Information Systems	1,799	96	23	119	16	4	20	19	11	30	31	4	35	2,003
52.1401		Marketing	5,787	183	221	404	53	55	108	51	57	108	66	85	151	6,558
52.1501	0580	Real Estate (BSBA)	0				1	0	1	2	0	2	4	5	9	12
		Pre-Law (Bus Adm & Accy)	1	0	0	0	0	0	0	0	0	0	0	0	0	1
		Quantitative Bus. Analy.	6	0	0	0	0	0	0	0	0	0	0	0	0	6
College Totals			30,987	1,066	877	1,943	284	221	505	335	266	601	458	357	815	34,851

degrees/bach108_revised792006.xls

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degrees/bach0109_revised792008.xls

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TECHNICAL DEVELOPMENT

The data set was unique compared to the majority of our development in that the source data was live ERP information and not scrubbed static census files. As of July 2008, there were 191,906 rows of data representing all degrees issued by the university in our 40+ year history.

Development of our new reports was accomplished via several SAS BI tools, including SAS Enterprise Guide®, Information Map Studio®, Information Delivery Portal®, and Web Report Studio® (WRS).

Enterprise Guide Design

After receiving the functional specifications development began on a DEGREE_FACT data set. Initial design used SAS Enterprise Guide and BaseSAS (Code Objects) to create the data.

Table 1: DEGREES_FACT data variables

EMPL_ID	HONORS_SUFFIX	ACADGROUP	HONORS_CODE2
LAST_NAME	GPA_DEGREE	ACAD_GROUP_DESCR	HONORS_AWARD_DT2
FIRST_NAME	CLASS_RANK_NBR	ACAD_PROG	HONORS_CODE3
MIDDLE_NAME	CLASS_RANK_TOT	ACADPROG_DESCR	HONORS_AWARD_DT3
ACAD_CAREER	ACAD_DEGR_STATUS	ACADORG	HONORS_CODE4
DEGREE	DEGR_STATUS_DATE	ACADORG_DESCR	HONORS_AWARD_DT4
STDNT_DEGR_NBR	ACAD_PLAN	FIRST_TERM	N
COMPLETION_TERM	ACADPLAN_DESCR	CF_BOE_GENDER	DEGREE_LEVEL_RANK
TERM_DESCR	STDNT_CAR_NBR	CF_BOE_RACE	DEGREE_TYPE
ACAD_YEAR_AWARDED	ACAD_SUB_PLAN	CF_BOE_RACE_DS	PRESIDENT
DEGR_CONFER_DT	SUBPLAN_DESCR	HONORS_CODE1	
HONORS_PREFIX	DEGREE_LEVEL	HONORS_AWARD_DT1	

The 'N' data field (Number of Degrees) was added to facilitate the sum functions used in later development. The field was coded as '1' for each row.

The 'Degree_Level_Rank' was added to assist with the sort function used in several reports. The default in Web Report Studio development was an alphabetical sort. The functional design called for degree level sorting (i.e Bachelor's, Master's, Specialist, Doctoral) rather than an alphabetical sort.

Future evolution of the DEGREE_FACT table will move into Data Integration Studio®. The DI Studio version will use the Platform Scheduler® to manage the weekly refreshes of the degree information.

Information Map Studio Design

Using Information Map Studio, the DEGREE_FACT data set was converted into the DEGREES_AWARDED information map that supports the WRS reporting. In addition to providing the data source for the Degree WRS solution, the information map can be used within all other BI suite tool as a data source for quick reporting or stored process development.

The process to create an information map is relatively intuitive. The programmer identifies the source table, generates label names, selects appropriate fields to include, identifies required properties, and assists with the filter creation (Figures 3 – 6).

Figure 3: Information Map Studio

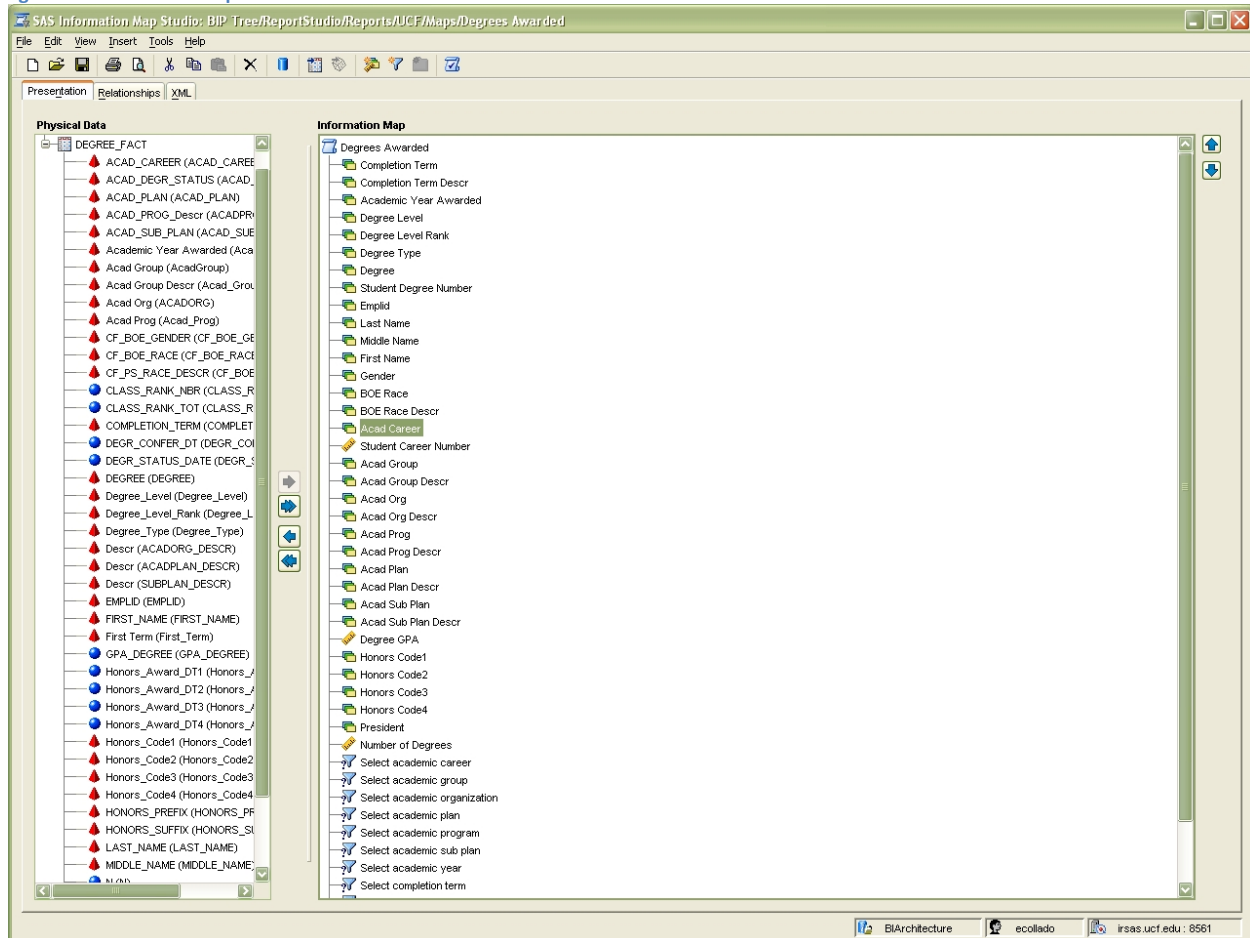


Figure 4: Information Map Options

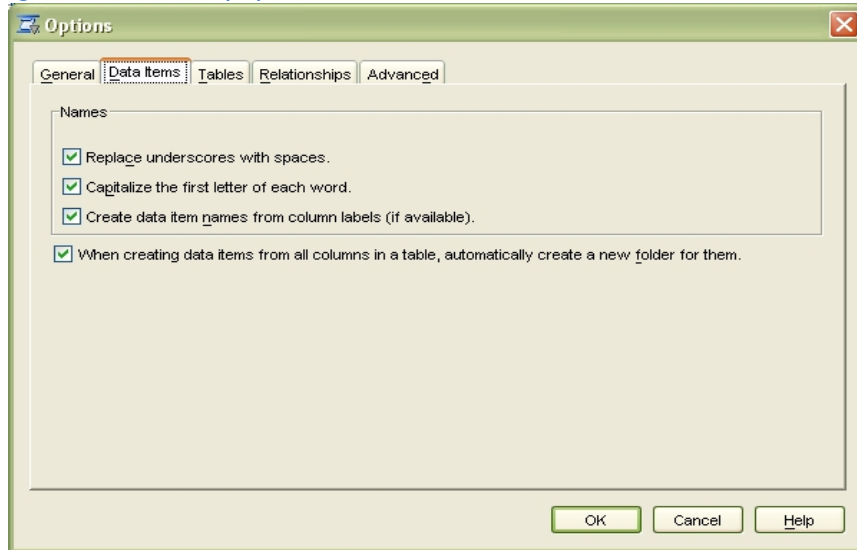


Figure 5: Information Map Data Item Properties

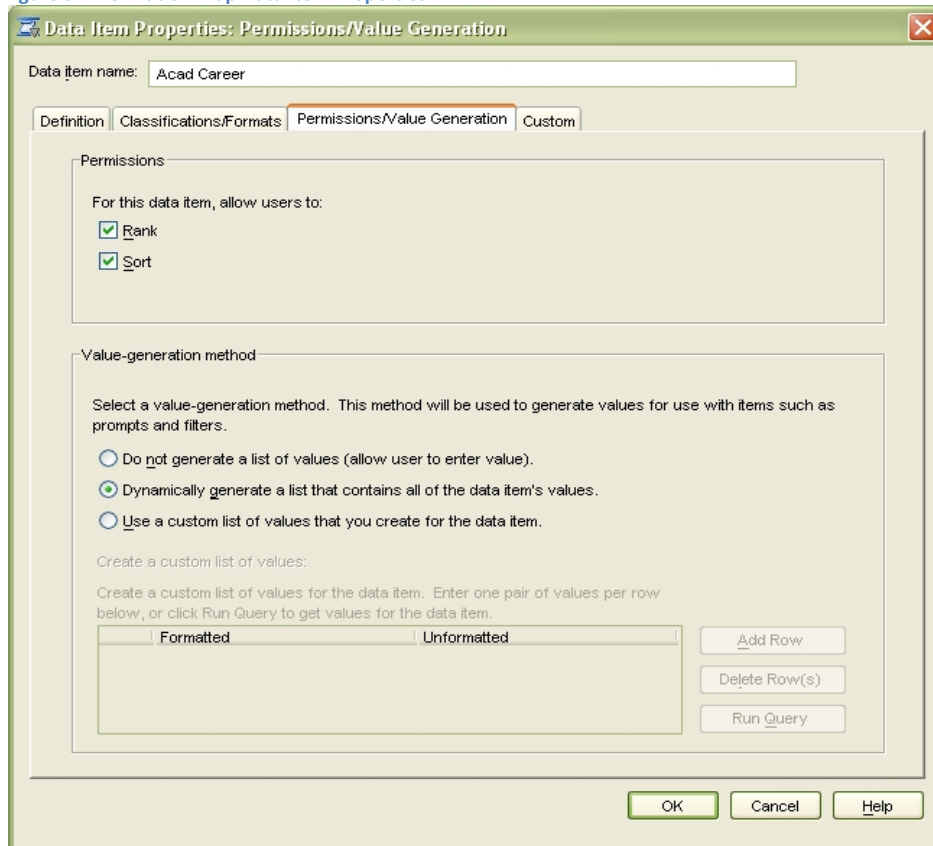


Figure 6: Information Map Manage Prompts

Manage Prompts

Existing prompts:

Name	Description	Text	Type
Term Descr Prompt	Prompt user for completion term descri...	Please select one ...	Selects from list
Term Prompt	Prompt user for completion term (STRM)	Please select one ...	Selects from list
Degree Level Pro...	Prompt user for degree level	Please select one ...	Selects from list
Acad Group Prompt	Prompt user for academic group	Please select one ...	Selects from list
Acad Org	Prompt user for academic org	Please select one ...	Selects from list
Acad Prog	Prompt user for academic program sel...	Please select one ...	Selects from list
Acad Career	Prompt user for academic career	Please select aca...	Selects from list
Acad Plan	Prompt user for academic plan	Please select one ...	Selects from list

Buttons: Create... Edit... Delete

Associated filters:

Name	Description
Select completion te...	Filter on the completion term(s) selected by user

Buttons: Close Help

Table 2 provides a detailed listing of the fields included in the DEGREES_AWARDED Information Map. The Information Map structure allows for the use of mixed-case labels (as selected in the Information Map Options (see Figure 4). Although not all fields are required in the current functionality, the design will allow for future development.

Table 2: DEGREES_AWARDED Information Map data variables

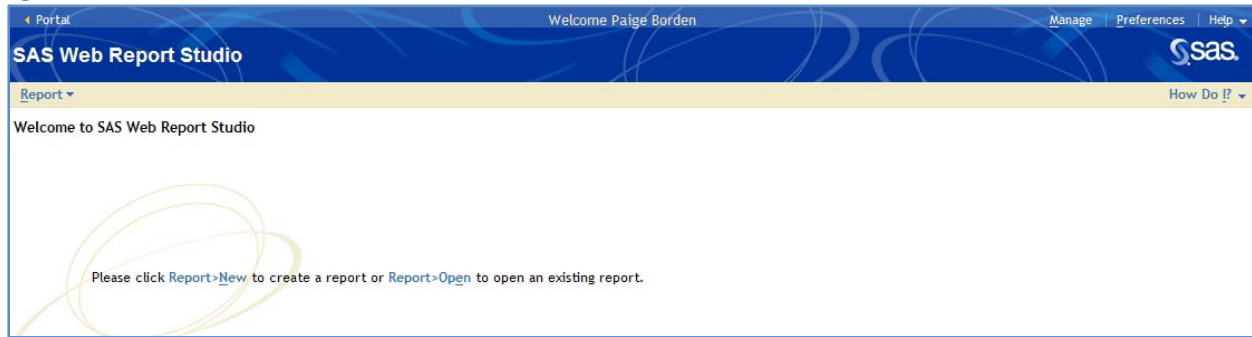
EmplID	Degree Level	Acad Org	Honors Code1
Last Name	Degree Level Rank	Acad Org Descr	Honors Code2
First Name	Stdnt Degr Nbr	Acad Prog	Honors Code3
Middle Name	Completion Term	Acad Prog Descr	Honors Code4
Gender	Term Desc	Acad Plan	Degree GPA
Race	Academic Year Awarded	Acad Plan Descr	Degree Type
Race Descr	Stdnt Car Nbr	Acad Sub Plan	Number of Degree
Acad Career	Acad Group	Acad Sub Plan Descr	President
Degree	Acad Group Descr		

Web Report Studio Design

Although we've owned the SAS BI suite for multiple years, our previous focus has been on data conversion, stored processes, OLAP cubes and dashboards. The Degree Profile was our pilot project using the Web Report Studio toolset.

Web Report Studio is accessed via the Information Delivery Portal. Upon selection, the report writer can create a new report or open an existing report (Figure 7).

Figure 7: WRS Initial Screen



In the example of Figure 8 and Figure 9, the report writer has elected to open an existing report.

Figure 8: WRS Open Existing Report (Screen 1)

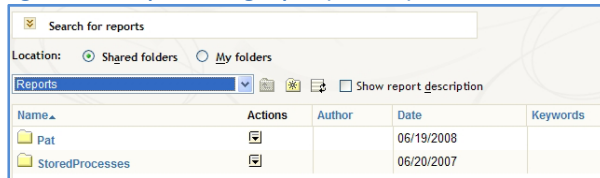
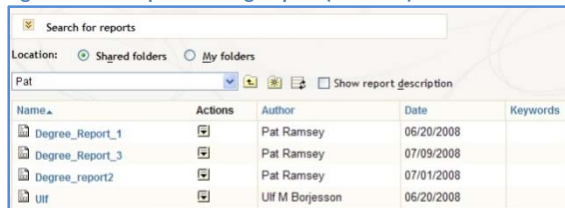


Figure 9: WRS Open Existing Report (Screen 2)



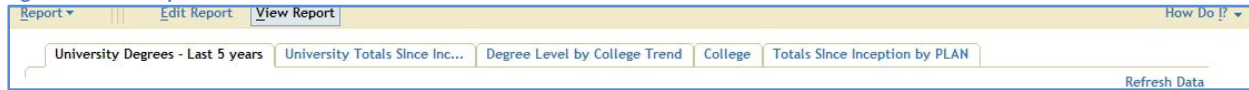
Following report selection, WRS retrieves data and prepares to display the default report (Figure 10). This screen appears frequently as the report viewer transitions through the various report options.

Figure 10: WRS Data and Report Retrieval



The overall WRS report design needed to incorporate multiple views that provided the greatest flexibility to our end users. To that end, the user is presented with a multi-tab display. Each tab translates into a different slice of degree data; University Degrees - Last 5 years, University Totals Since Inception, Degree Level by College Trend, Totals Since Inception by College and Department (College) and Totals Since Inception by PLAN (Figure 11). In most cases all reports will have both a graphical view and data table view of the presented details. All graphs have mouse-over functionality and display the detailed data figures when appropriate.

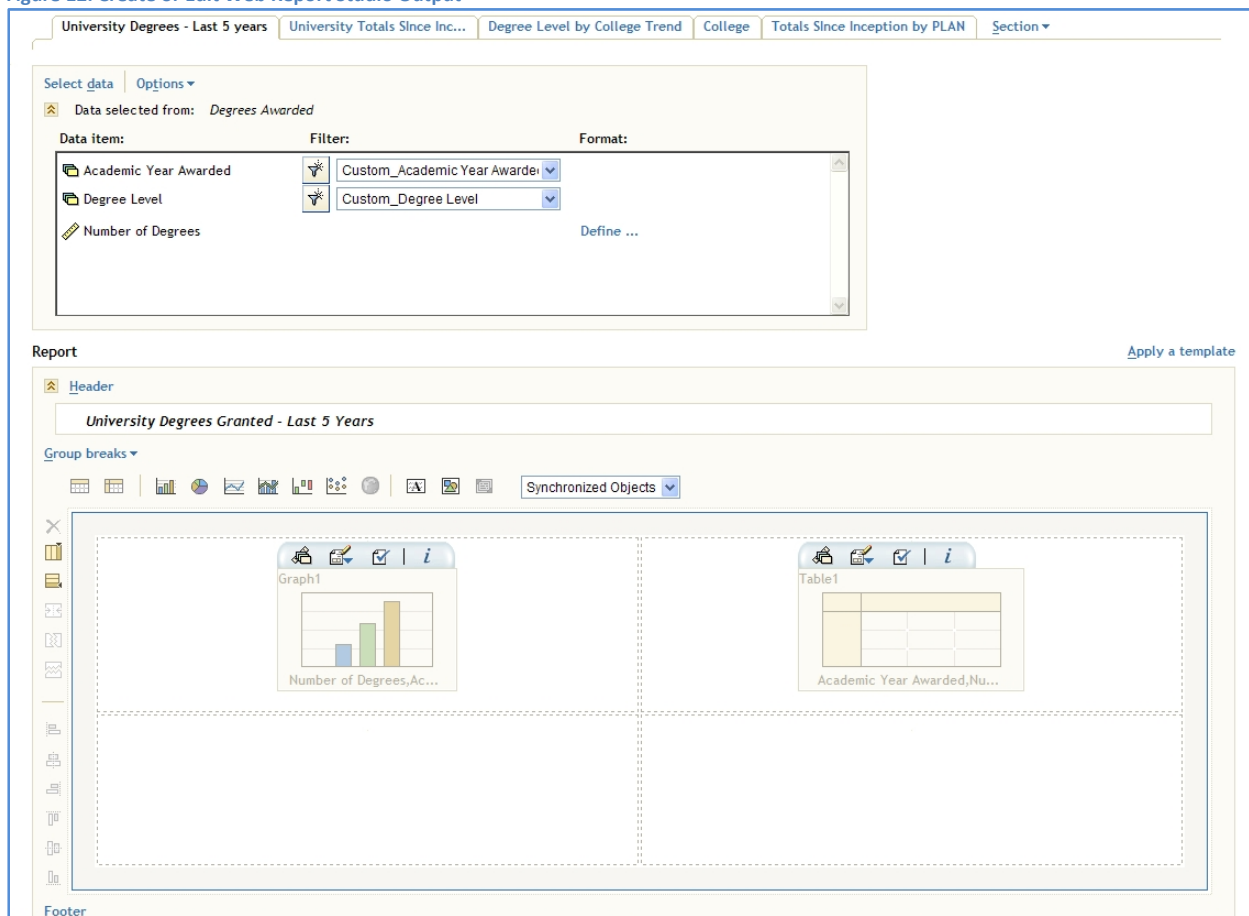
Figure 11: WRS Report Tabs



To design the output, Web Report Studio has provided an editing screen (Figure 12) fully controlled by the initial report developer. Data is selected, various options identified, and filters applied to manipulate the output. Full report design can be completed within the editing screen.

As for the specific report output, the developer can identify header and footer information, assign group breaks, select graphing design options, position output objects and control each object. When multiple objects are displayed the developer can keep them as synchronized objects or allow them to be independent.

Figure 12: Create or Edit Web Report Studio Output



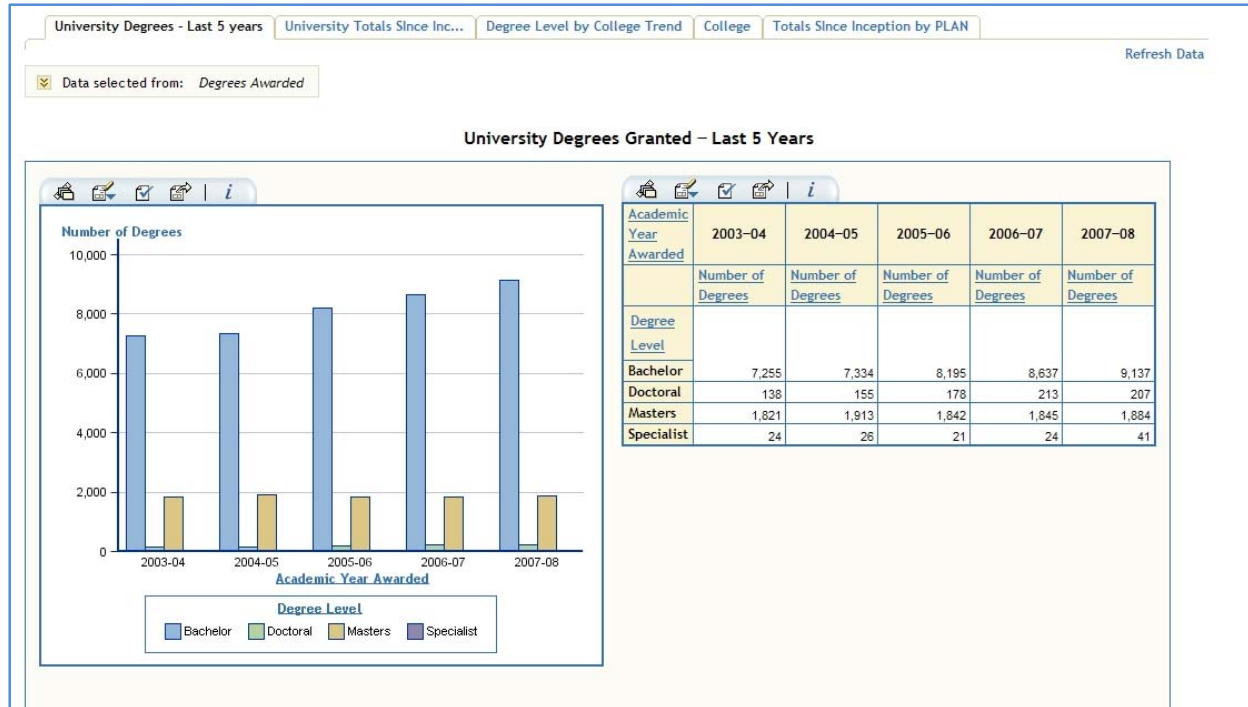
DEGREES AWARDED WRS OUTPUT

To provide the full range of requested functionality, several different report slices have been created. Most of the reports allow for user prompts or filters, they can be printed or exported and the user has limited control on the view (i.e. can change the size of graphs).

University Degrees – Last 5 years

Figure 13 presents the output of the initial default page. University Degrees – Last 5 years provides a quick summary of degree totals by academic year with trend information. If the end-user were interested in simple counts, recent trend information or a quick review of degrees conferred, no more research or navigation would be required.

Figure 13: 5 Year University Trend



University Totals Since Inception

The output displayed in Figures 14 and 15 focus on the overall trend lines for degrees awarded since university inception. This output includes all degree types, including the rarely reviewed Associate of Arts, Undergraduate Certificate and Graduate Certificate. Again, graphical views are presented on the left with a data table on the right.

Figure 14: University Totals Since Inception (Left-side view)

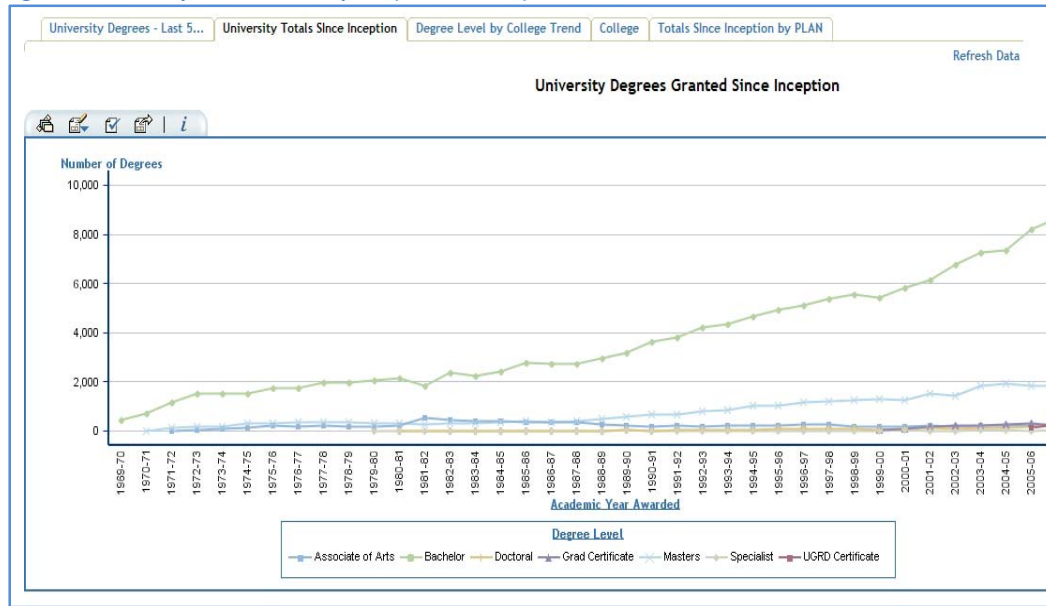
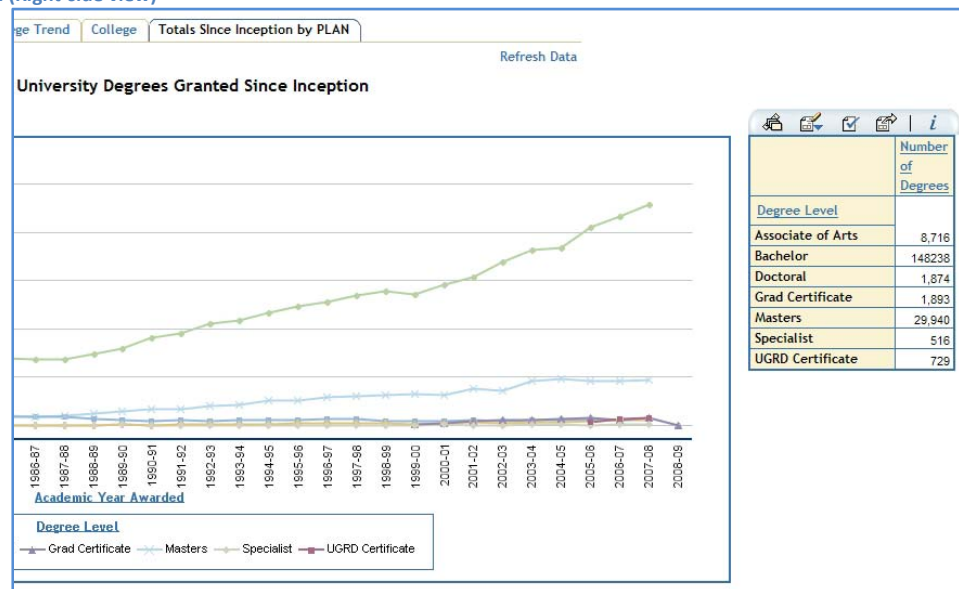


Figure 15: Totals Since Inception (Right-side view)



Degree Level by College Trends

The Degree Level by College Trends report allows end-users to select which terms they'd like to view and limit the report to specific degree values (Figure 16).

Figure 16: Prompt Screen for Degree Level by College Trends

Please answer the prompts below and click the View Report button to continue.

* Prompt user for academic year
Please select one or more academic years

Available values:
1969-70
1970-71
1971-72
1972-73
1973-74
1974-75
1975-76
1976-77
1977-78
1978-79
1979-80
1980-81

Selected values:
2003-04
2004-05
2005-06
2006-07
2007-08

* Prompt user for degree level
Please select one or more degree levels for your report

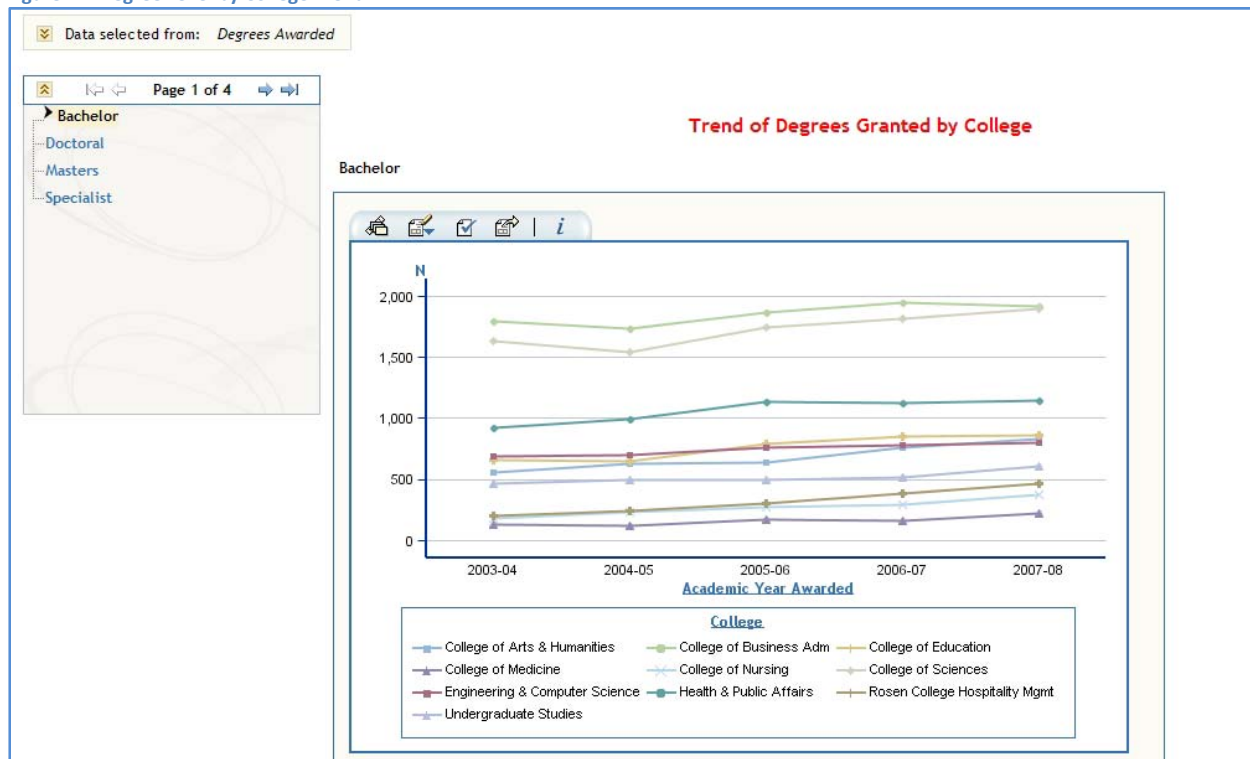
Available values:
UGRD Certificate
Grad Certificate
Associate of Arts

Selected values:
Bachelor
Masters
Specialist
Doctoral

[View Report](#) [Reset to Defaults](#)

Figure 17 details the output of Degree Level by College Trends based upon user prompt selections.

Figure 17: Degree Level by College Trend



Academic Year Awarded	2003-04	2004-05	2005-06	2006-07	2007-08
N	N	N	N	N	N
College					
College of Arts & Humanities	556	626	639	763	830
College of Business Adm	1,800	1,740	1,872	1,945	1,920
College of Education	660	648	790	849	858
College of Medicine	137	120	176	167	226
College of Nursing	187	231	277	294	371
College of Sciences	1,634	1,539	1,751	1,816	1,903
Engineering & Computer Science	689	697	757	777	805
Health & Public Affairs	924	993	1,138	1,122	1,151
Rosen College Hospitality Mgmt	203	241	300	384	464
Undergraduate Studies	465	499	495	520	609
Total	7,255	7,334	8,195	8,637	9,137

Once the report displays output based upon prompt selection, the end-user has the option of viewing a specific degree level value by using the filter box in the upper left-hand corner (Figure 17). As the selection is altered, both the graphical view and the data table view will update to provide the appropriate information.

College (Totals Since Inception by College and Department)

If the end user is interested in department level degree figures, this report will provide the requested information. Figure 18 provides details related to the prompts for this report, where as figure 19 provides a view of the output. The College (Totals Since Inception by College and Department) report is unique in that it provides the degrees in a term-by-term structure, rather than pre-summarized academic year data. The user can also see figures broken down by major and track.

Figure 18: Prompt Screen for Totals Since Inception by College & Department

Please answer the prompts below and click the View Report button to continue.

* Prompt user for academic year

Please select one or more academic years

Available values:

- 1969-70
- 1970-71
- 1971-72
- 1972-73
- 1973-74
- 1974-75
- 1975-76
- 1976-77
- 1977-78
- 1978-79
- 1979-80
- 1980-81

Selected values:

- 2003-04
- 2004-05
- 2005-06
- 2006-07
- 2007-08

* Prompt user for degree level

Please select one or more degree levels for your report

Available values:

- UGRD Certificate
- Grad Certificate
- Associate of Arts

Selected values:

- Bachelor
- Masters
- Specialist
- Doctoral

View Report

Reset to Defaults

Once the report is displayed, the end-user again has access to a filter box (upper left-hand corner of Figure 19) to select a specific college and department (i.e. College of Health and Public Affairs, Public Administration Department). Each degree level appears as different data table. Due to the amount of data presented a graphical view is not provided to the viewer.

Figure 19: Totals Since Inception by College & Department

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- College of Medicine
 - College of Nursing
 - College of Optics & Photonics
 - College of Sciences
 - Engineering & Computer Science
 - Graduate Studies
 - Health & Public Affairs
 - Communicative Disorders
 - Criminal Justice/Legal Studies
 - Dean's Office COHPA
 - Health Professions
 - Public Administration

Health & Public Affairs

Public Administration

Bachelor

Academic Year Awarded		2003-04			2004-05			2005-06			2006-07		
Completion Term		1180	1190	1200	1210	1220	1230	1240	1250	1260	1270	1280	1290
Completion Term Descr		Summer 2003	Fall 2003	Spring 2004	Summer 2004	Fall 2004	Spring 2005	Summer 2005	Fall 2005	Spring 2006	Summer 2006	Fall 2006	Spring 2007
		N	N	N	N	N	N	N	N	N	N	N	N
Acad Plan	Acad Sub Plan												
Public Administration BA		6	12	13	10	11	5	6	9	13	6	7	9
Public Administration BS		5	7	6	4	4	14	7	15	15	6	8	19
Total		11	19	19	14	15	19	13	24	28	12	15	28

Masters

Academic Year Awarded		2003-04			2004-05			2005-06			2006-07		
Completion Term		1180	1190	1200	1210	1220	1230	1240	1250	1260	1270	1280	1290
Completion Term Descr		Summer 2003	Fall 2003	Spring 2004	Summer 2004	Fall 2004	Spring 2005	Summer 2005	Fall 2005	Spring 2006	Summer 2006	Fall 2006	Spring 2007
		N	N	N	N	N	N	N	N	N	N	N	N
Acad Plan	Acad Sub Plan												
Nonprofit Management MNM								4	3	1	4	9	8
Public Administration MPA		22	16	24	16	24	25	13	13	15	23	12	9
Total		22	16	24	16	24	25	17	16	16	27	21	17

Totals Since Inception by Plan

This report is similar to the previous college/department report; however, there is an added College and Major prompt selection. The option to select terms is not available in the current format. Figure 20 provides the prompt details and Figure 21 demonstrates the output.

Figure 20: Prompt Screen for Totals Since Inception by Plan

Please answer the prompts below and click the View Report button to continue.

*** Prompt user for degree level**
Please select one or more degree levels for your report

Available values:		Selected values:
Associate of Arts	➤ ➤	Bachelor
UGRD Certificate		Masters
Grad Certificate		Doctoral
Specialist		

*** Prompt user for academic group**
Please select one or more academic groups for your report

Available values:		Selected values:
	➤ ➤	College of Arts & Humanities
		College of Arts & Sciences
		College of Education
		Engineering & Computer Science
		Graduate Studies
		Health & Public Affairs
		College of Medicine
		College of Nursing
		College of Optics & Photonics
		Rosen College Hospitality Mgmt
		College of Sciences
		Historical Conversion

*** Prompt user for academic plan**
Please select one or more academic plans

Available values:		Selected values:
	➤ ➤	AA Degree
		Accounting BSBA
		Accounting MSA
		Actuarial Science BS
		Addictions Cert
		Addictions Cert (UGRD)
		Advertise/Public Relations BA
		Aerospace Engineering BSAE
		Aerospace Engineering MSAE
		Aging Studies Cert (UGRD)
		Aging Studies Grad Cert
		Amer Sign Language Cert (UGRD)

View Report

Reset to Defaults

Figure 21: Totals Since Inception by Plan

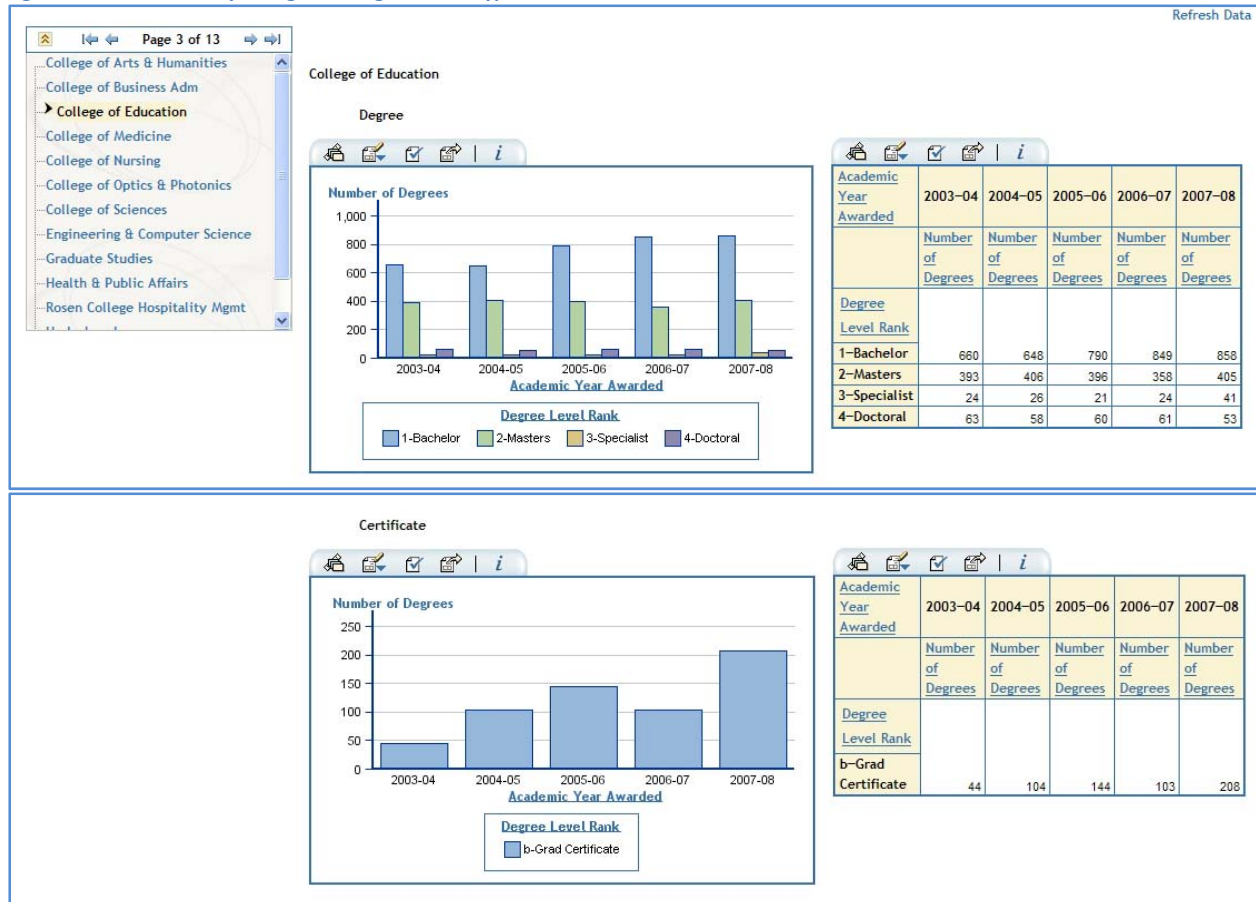
Academic Year Awarded			1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84
Degree Level	Acad Group Descr	Acad Plan Descr	Number of Degrees	Number of Degrees	Number of Degrees	Number of Degrees	Number of Degrees	Number of Degrees	Number of Degrees	Number of Degrees	Number of Degrees	Number of Degrees	Number of Degrees	Number of Degrees	Number of Degrees	Number of Degrees	Number of Degrees
College of Arts & Humanities		Art BA	4	6	21	17	29	45	36	44	26	37	41	28	21	34	
		Art BFA	-	-	-	-	-	-	-	-	13	7	7	2	3	4	
		Digital Media BA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Digital Media BS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		English BA	15	18	15	23	25	17	17	14	21	16	16	21	17	13	
		Film (RTV) BA	-	-	-	-	-	-	5	2	8	6	14	14	12	16	
		Film BA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Film BFA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		French BA	-	-	3	6	4	8	2	2	4	5	4	9	2	5	
		History BA	14	18	37	35	28	32	42	34	41	29	29	33	20	27	
		Humanities BA	-	2	15	17	15	8	7	6	14	7	15	10	7	6	
		Humanities/Fine Arts BA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Modern Languages Comb BA	-	1	1	-	2	1	3	-	2	7	3	5	2	1	
		Music BA	1	1	3	2	7	7	6	4	9	9	16	16	8	8	
		Music Education BME	-	-	-	-	-	8	10	15	12	12	12	5	6	3	
		Music Performance BM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Philosophy BA	-	-	-	-	4	7	8	6	14	8	8	8	4	11	
		Photography, AS to BS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Religious Studies BA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Spanish BA	-	3	8	8	5	3	17	6	5	7	11	8	2	5	
		Theatre BFA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Theatre Studies BA	-	-	7	2	5	9	8	12	6	7	9	6	7	6	
		Subtotal	34	49	110	110	124	146	165	150	178	160	185	166	113	143	
		Accounting BSBA	10	24	50	71	78	118	116	104	127	126	137	151	123	182	
		Business Administration BABA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Business Economics BSBA	10	8	12	13	6	13	17	12	13	11	7	6	5	7	
		Economics BA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Finance BSBA	15	23	30	49	54	46	63	52	55	68	71	88	87	156	
		General Business BSBA	-	8	5	11	13	20	40	59	80	70	59	45	49	49	

The five reports detailed in Figures 12 – 21 represent the pilot project output for our Web Report Studio design. Lessons have already been learned that will allow for enhanced future development. As seen in the next report output (Figure 22).

5 Year Trend by College and Degree Level/Type

Following some initial design attempts, another version of the Degree Level by College Trend report was created. This time the developer incorporated both trend information with the end-user based filter options (Figure 22). However, the output is limited to the most recent five years.

Figure 22: 5 Year Trend by College and Degree Level/Type



FUTURE ENHANCEMENTS

Additional development that incorporates our increased awareness of the product functionality will continue as we prepare to present the degree application at SESUG.

In the coming months, the reports will continue to be released on soft roll-out production schedule. At that time, we plan to ascertain feedback from end-users to incorporate additional functionality. This may include gender based reporting, race/ethnicity based reporting, graduate GPA ranges or other unknown enhancements.

CONCLUSION

Initial feedback on the application design has been positive with specific comments regarding the graphs and trending improvements. Our development team has taken advantage of the many learning opportunities that this inaugural project has provided and we've already identified several other reports for conversion into Web Report Studio.

REFERENCES

To assist with our first Information Map file generation, the developers used two SAS Manuals downloaded from <http://support.sas.com/documentation/onlinedoc/ims/index.html>.

SAS Information Map Studio 3.1 Creating Your First Map.pdf
 SAS Information Map Studio 3.1 Tips and Techniques.pdf

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This paper could not have been completed without the development work of three talented staff members. Maureen Murray developed the initial DEGREE_FACT data set. Evangeline Collado experimented with Information Map Studio to create our inaugural map of DEGREES_AWARDED. Lastly, Patricia Ramsey played, broke and played with Web Report Studio to develop all of the output detailed in the paper.

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