

Study of ODS Meta Data Sources of Student Credit Hours

Purpose of Study

This study was conducted to find the most accurate source of student credit hour and billing hour data. The intent was not to find data errors, but rather to determine how to obtain the most accurate data possible. Input was provided by the Registrar's Office, Extended Studies, Academic Scheduling, Accounts Receivable, Center for International Education, National Student Exchange, OBIA and Information Technology.

SCHEDULE_OFFERING

This source contains data from *Banner* form **SSASECT.GENERATED_CREDITS** for each course equals **Generated Credit Hours** on **SSASECT** as well as **SSBSECT_TOT_CREDIT_HRS** from ODS view **SSBSECT**, the primary source for this synonym. In addition, **ACTUAL_ENROLLMENT** equals **Actual Enrollment** on **SSASECT** and also **SSBSECT_ENRL** from **SSBSECT**. Actual billed hours are not available in this source.

The screenshot shows the 'Section Details' form for course HIST-100. The form includes fields for Subject (HIST-History), Course Number (100), Title (HI1-Amer Hist Begin to 1877), Section (002), Campus (Main Campus), Status (Active), Schedule Type (Lecture), Instructional Method (Traditional), and various hour fields (Credit Hours, Billing Hours, Contact Hours, Lecture, Lab, Other) all set to 3.000. It also shows registration dates, start dates, and checkboxes for Print, Gradable, and Tuition and Fee Waiver.

Figure 1 SSASECT [Schedule]

The screenshot shows the 'Enrollment Data' form for course HIST-100. It displays enrollment statistics: Maximum (65), Actual (64), Remaining (1), Waitlist Maximum (0), Waitlist Actual (0), Waitlist Remaining (0), Projected (0), and Prior (0). The 'Generated Credit Hours' field is highlighted with a red box and contains the value 192.000. Below, the 'Census One' and 'Census Two' sections show enrollment counts of 65 and 64 respectively, with freeze dates of 08-SEP-2008 and 17-OCT-2008.

Figure 2 SSASECT->Section Enrollment Info

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STUDENT_COURSE_REG_AUDIT

This source contains registration records shown on *Banner* form SFASTCA from entries made on *Banner* form SFAREGS. The **GENERATED_CREDITS** total in **SCHEDULE_OFFERING** nearly matches the **COURSE_CREDITS** total in this source. Summing **COURSE_CREDITS** in **STUDENT_COURSE_REG_AUDIT** for the criteria presented below yields a total that is currently 31 credit hours less than the **GENERATED_CREDITS** total in **SCHEDULE_OFFERING** for terms 200650 through 200930.

Report Criteria

- ✓ REGISTRATION_SOURCE EQ 'BASE'
- ✓ BY HIGHEST 1 SEQUENCE_NUMBER
- ✓ REGISTRATION_STATUS NOT LIKE 'D%' (applied to registration record with highest sequence number)

Sequence Number	Term	CRN	Subject	Course	Section	Campus	Level	Grading Mode	Attempted Hours	Credit Hours	Bill Hours	Source
114	200850	10001	HIST	100	002	M	UG	S	3.000	3.000	3.000	BASE
119	200850	10001	HIST	100	002	M	UG	S	3.000	3.000	3.000	BASE

Course Status	Status Date	Add Date	Message	User	Activity Date	Error Flag
RW	24-JUL-2008	24-JUL-2008	Midterm updated to B	WWW2_USER	13-OCT-2008 13:05	
RW	24-JUL-2008	24-JUL-2008	Final updated to A-	WWW2_USER	17-DEC-2008 13:33	

Figure 3 SFASTCA [Student Course Registration Audit]

CRN	Subject	Course	Section	Grade Mode	Credit Hours	Bill Hours	Attempted Hours	Time Status	Status	Level	Appr Recd	Over	Part of Term	Method of Instruction	Camp	Err Flag	Stat Type
10001	HIST	100	002	S	3.000	3.000	3.000	3.000	RW	UG			1	TR	M		R
10488	BIO	100	009	S	3.000	3.000	3.000	3.000	RW	UG			1	TR	M		R
11335	GEOG	100	022	S	3.000	3.000	3.000	3.000	RW	UG			1	TR	M		R
10115	PSY	120	006	S	3.000	3.000	3.000	3.000	RW	UG			1	TR	M		R

Figure 4 SFAREGS [Student Course Registration]

The credit hour differences between **STUDENT_COURSE_REG_AUDIT** and **SCHEDULE_OFFERING** are within 12 CRNs. For those courses that do not match, the data on *Banner* form SFASLST matches **STUDENT_COURSE_REG_AUDIT** records. Also, the number of students listed for the course in **STUDENT_COURSE_REG_AUDIT** matches the number of students listed on **SFASLST** rather than **Actual Enrollment** on **SSASECT**.

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Class Roster SFASLST 7.4.0.1 (PROD)

Term: 200850 Fall 2008 CRN: 10001 HIST 100 002 Roll Degree Award Status:

Sequence	ID	Name	Status	Status Date	Midterm Grade	Final Grade	Grade Mode	Rolled	Hours
81			RW	24-JUL-2008	B	A-	S	<input checked="" type="checkbox"/>	3.000
Grade Comment: [dropdown]									
37			RW	17-JUN-2008	D	C	S	<input checked="" type="checkbox"/>	3.000
Grade Comment: [dropdown]									
68			RW	10-JUL-2008	F	F	S	<input checked="" type="checkbox"/>	3.000
Grade Comment: [dropdown]									
19			RW	07-MAY-2008	D-	F	S	<input checked="" type="checkbox"/>	3.000
Grade Comment: [dropdown]									
40			RW	19-JUN-2008	C+	C+	S	<input checked="" type="checkbox"/>	3.000
Grade Comment: [dropdown]									
105			RW	25-AUG-2008	B-	B-	S	<input checked="" type="checkbox"/>	3.000
Grade Comment: [dropdown]									

Figure 5 SFASLST [Class Roster]

STUDENT_COURSE

With a few identified exceptions, **COURSE_CREDITS** in this source appears to match the data on *Banner* forms **SHACRSE** and **SHATCKN**, which display records that appear on a student's transcript, using the criteria presented below:

Report Criteria

- ✓ REGISTRATION_STATUS NOT LIKE 'D%' OR REGISTRATION_STATUS IS MISSING
- ✓ TRANSFER_COURSE_IND NE 'Y'

The exceptions involve the existence of a final grade and registration changes made after it was rolled to history. **SHACRSE** displays the **SHATCKN** record with the highest **Grade Sequence Number** and ignores registration changes entered on **SFAREGS** after the final grade was recorded, unless the changes were made manually on **SHATCKN** as well. Below are the exception scenarios found:

1. **There was no grade recorded for the course.**
 - Unless a record was entered manually on **SHATCKN** (with **Change Reason** Academic Appeal, Entry Error, Instructor Error, etc.), the course is in **STUDENT_COURSE** but is not on **SHACRSE** or **SHATCKN** and is not on the student's transcript.
2. **The course was dropped after a final grade was recorded.**
 - Unless the course was deleted manually on **SHATCKN**, the dropped course is not in **STUDENT_COURSE** but is on **SHACRSE** and **SHATCKN** and is on the student's transcript.
3. **A registration record was added changing the credit hours after a final grade was recorded.**
 - Unless the credit hours were changed manually on **SHATCKN**, the change in hours is reflected in **STUDENT_COURSE** but not on **SHACRSE** or **SHATCKN** and not on the student's transcript.

For terms 200650 through 200930, the **COURSE_CREDITS** total in **STUDENT_COURSE** is currently 482 hours less than the **GENERATED_CREDITS** total in **SCHEDULE_OFFERING** and 451 hours less than the **COURSE_CREDITS** total in **STUDENT_COURSE_REG_AUDIT**, using the specified report criteria.

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Select	Term	Part of Term	Campus	Level	CRN	Subject	Course	Section	Hours	Grade	Mode	Repeat	Course Title
	200750	1	M	UG	12927	BIO	333	014	4.000	A	S		General Parasitology
	200750	1	M	UG	13610	BIO	494	846	2.000	A	S		Pract Coll Bio Sci Instr
	200750	1	M	UG	10119	PHYS	220	007	5.000	B	S		SC1-Introductory Physics I
	200750	1	M	UG	11798	PSY	230	012	3.000	B	S		SS3-Human Growth And Develop
	200750	1	M	UG	10287	STAT	250	005	3.000	A	S		MA1-Stat For Health Sci

Figure 6 SHACRSE [Course Summary]

Course Detail

CRN: 12927 Subject: B10 Course: 333 General Parasitology
 Section: 014 Campus: M Repeat: (None) System:
 Schedule Type: LEC Part of Term: 1 Comment:
 Co-op Education: Start/End Dates: Extension:

Sequence Number	Grade	Grade Mode	Credit Hours	Attempted Hours	Change Reason	Extension Date	Grade Date	Grade Comment	User
2	A	S	4.000		EE Entry Error		21-DEC-2007		JOYCE_HAYS
1	A	S	.000		OE Original Entry		17-DEC-2007		Victoria_Hayw

Level Code: UG Undergraduate Primary Level Indicator:

Figure 7 SHATCKN [Course Maintenance]

Generally, **COURSE_BILLING CREDITS** in **STUDENT_COURSE** matches data from **STUDENT_COURSE_REG_AUDIT**, except for courses deleted on **SHATCKN** and not dropped on **SFAREGS**. For terms 200650 through 200930, the **COURSE_BILLING_CREDITS** total is currently 592 hours less than the **COURSE_BILLING_CREDITS** total in **STUDENT_COURSE_REG_AUDIT**, using the specified report criteria. **STUDENT_COURSE** unexpectedly includes seven course records that **STUDENT_COURSE_REG_AUDIT** shows were changed from withdrawals to drops. Occasionally, **STUDENT_COURSE** includes a record without a registration status, which indicates it was created on **SHATCKN**, that is a duplicate of a **SFAREGS** record, but usually such records were created on **SHATCKN** because no **SFAREGS** record existed.

Both **STUDENT_COURSE** and **SHACRSE**, as well as **SCHEDULE_OFFERING**, include *ISE* (International Student Exchange) and *NSE* (National Student Exchange) courses for outgoing exchange students. *NG* (no grade) is recorded for the UNC courses so they won't be included in the students' GPAs, and credits earned at other institutions become transfer hours. Typically, outgoing exchange students are charged UNC tuition while incoming exchange students are not, although their course registration is recorded on **SFAREGS** as usual. Credit and billing hours for both incoming and outgoing exchange students appear in **STUDENT_COURSE** and **SCHEDULE_OFFERING**; therefore, unless *ISE* and *NSE* courses taken by outgoing exchange students are excluded from credit hour and billing hour totals, the hours are duplicated. Moreover, the *Course Crosswalk* crosses those courses to CIE even though they are not taught by CIE faculty. Study abroad students also register for *ISE*

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- ✓ If not found, **COURSE_CREDITS** in **STUDENT_COURSE** matches **GENERATED_CREDITS** in **SCHEDULE_OFFERING**, but the student is awarded incorrect hours.
- ✓ Similar issues occur when **Billing Hours** are wrong on **SCACRSE**, except that records changed on **SHATCKN** and not **SFAREGS** cause **COURSE_BILLING_CREDITS** in **STUDENT_COURSE** to be incorrect because billing hours come from **SFAREGS** records and not **SHATCKN** entries. (Billing hours errors are often found by Accounts Receivable and reported to the Registrar's Office for correction. COF is applied to credit hours even if billing hours are wrong.)
- **Credit Hours** and **Billing Hours** for courses with variable credit hours did not match when registration was recorded on **SFAREGS**.
 - ✓ Actions are similar to those described above.

2. Academic Appeals

- A course was deleted on **SHATCKN** but not dropped on **SFAREGS** after the end of the term.
 - ✓ The course is no longer on **SHACRSE**, will not appear on the student's transcript, and is not in **STUDENT_COURSE**, but the credit hours are in **GENERATED_CREDITS** in **SCHEDULE_OFFERING**. (This has occurred when a student who registered for a course but never attended class submitted a request after the end of the term to have the course dropped so it will not be on the student's transcript.)
- Credit hours were changed on **SHATCKN** but not on **SFAREGS** after the end of the term.
 - ✓ A record of the change is not on **SFASTCA**, so the change is not reflected in **GENERATED_CREDITS** in **SCHEDULE_OFFERING** but does appear correctly in **COURSE_CREDITS** in **STUDENT_COURSE**.
 - ✓ Although **COURSE_CREDITS** in **STUDENT_COURSE** is correct, **COURSE_BILLING_CREDITS** in **STUDENT_COURSE** is incorrect because it was not updated through **SFAREGS**. (The Registrar's Office works with Accounts Receivable to ensure that the student is billed for added hours or refunded for dropped hours less a cancellation fee, if applicable.)
- A course was added on **SHATCKN** instead of **SFAREGS** after the end of the term.
 - ✓ Courses with CRNs have been added on **SHATCKN** instead of **SFAREGS** when they needed to be added after the end of the term. (The current policy is to add courses on **SFAREGS** by backdating the registration when possible.)
 - ✓ When courses without CRNs are added on **SHATCKN**, the system generates one beginning with SG. The course appears in **STUDENT_COURSE** with correct **COURSE_CREDITS**, but **COURSE_BILLING_CREDITS** is null. (Some of these courses are offered through an Exchange Agreement with CSU, which is found in the comments field on **SHATCKN**.) **SCHEDULE_OFFERING** does not include course records created on **SHATCKN** instead of **SFAREGS**.

3. Colorado School of Public Health Courses

- Courses were deleted on **SHATCKN** through a batch process after the end of the term.
 - ✓ Through an agreement with UCD, CSPH students are not charged for these courses by UNC, and the courses appear on UCD transcripts, so they are removed from UNC transcripts. (Tuition revenue is received directly from the Colorado School of Public Health.)
 - ✓ The courses are not in **STUDENT_COURSE** but the credit hours are in **GENERATED_CREDITS** in **SCHEDULE_OFFERING**.

For the 11 terms of *Banner* course registration data from 200650 through 200930, the **GENERATED_CREDITS** total in **SCHEDULE_OFFERING** is currently 382 hours higher than the **COURSE_CREDITS** total in **STUDENT_COURSE**, using the specified report criteria. That figure is .04% of approximately 957,500 total hours for those terms. For the same period, the **COURSE_BILLING_CREDITS** total in **STUDENT_COURSE** is 881 hours less than the **COURSE_CREDITS** total in the same source. This disparity includes 594 *CEU* hours for which there was no tuition charge, leaving a difference of only 287 hours.

Conclusion

Because **COURSE_CREDITS** in **STUDENT_COURSE** (and **GOVERNMENT_COURSE**) reflects changes made on **SHATCKN** but not entered on **SFAREGS**, this seems to be the most accurate source of credit hour data. It follows that it is the most accurate source of enrollment data as well. Nevertheless, **GENERATED_CREDITS** in **SCHEDULE_OFFERING** differs by only a small percentage. For the same reason, **COURSE_CREDITS** in **STUDENT_COURSE** (and **GOVERNMENT_COURSE**) also appears to be the most accurate source of billing hours, if *CEU* courses with no tuition charge are excluded. However, additional steps can be taken to find and correct errors to improve the accuracy of all of these sources, as well as transcript data.

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Recommendations

1. **Develop Insight reports to identify the following errors so they can be corrected in a timely manner:**
 - Course records in **STUDENT_COURSE** without a dropped status that are missing a grade
 - Course records in **STUDENT_COURSE** with a dropped status that have a grade
 - Course records in **STUDENT_COURSE** where credit hours do not match billing hours
 - Courses in **LIVE_SCBCRSE** where credit hours do not match billing hours
2. **Determine other errors that cause incorrect data to be returned in credit hour production reports and develop Insight reports to identify them, e.g.,:**
 - Canceled courses with registered students
 - Courses with no room code
 - Students not registered for a co-requisite course
3. **Review registration and record-keeping processes that leave no audit trail on SFASTCA, including the following:**
 - Adding a course without a CRN on **SHATCKN**
 - Deleting a course on **SHATCKN**
 - Changing credit hours for a course on **SHATCKN**

The Registrar's Office, OBIA and Information Technology can provide additional insight into these data sources and registration and record-keeping processes.