

## **Liu Cao--Data Query on UW Madison Courses and Grades 2006-2017**

Our data set is UW Madison Courses and Grades 2006-2017 from Kaggle datasets. The link is:

[https://www.kaggle.com/Madgrades/uw-madison-courses#course\\_offerings.csv](https://www.kaggle.com/Madgrades/uw-madison-courses#course_offerings.csv).

(1) How many subjects are there in the university?

```
SELECT COUNT(DISTINCT code) FROM subjects
```

200

(2) Count the number of instructors who have mid name.

```
SELECT COUNT(*) FROM instructors WHERE name REGEXP '[\s][A-Za-z]+[\s]'
```

3367

(3) How many courses that contain “Biology” in names?

```
SELECT COUNT(*) FROM courses WHERE name REGEXP 'Biology'
```

79

(4) Print the names of courses which start with “Introduction to”.

```
SELECT name FROM courses WHERE name REGEXP '^Introduction[\s]to.*'
```

Only list 10 courses out of 344:

"Introduction to Folklore"

"Introduction to Speech Composition"

"Introduction to the Nursing Profession"

"Introduction to College Composition"

"Introduction to Art"

"Introduction to Cultures of Asia"

"Introduction to Animal Sciences"

"Introduction to Naval Science"

"Introduction to Human Geography"

"Introduction to Philosophy"

.....

(5) Print the subject with the most courses in total in the university.

```
SELECT subjects.name FROM
subjects JOIN subject_memberships ON subjects.code = subject_memberships.subject_code
JOIN course_offerings ON subject_memberships.course_offering_uuid = course_offerings.uuid
GROUP BY subjects.code
ORDER BY COUNT(DISTINCT course_offerings.uuid) DESC LIMIT 1
```

Music-Performance

(6) How many instructors who have courses in Fall 2016 (term\_code: 1172)?

```
SELECT COUNT(DISTINCT instructors.id) FROM
Instructors JOIN teachings ON instructors.id = teachings.instructor_id
JOIN sections ON teachings.section_uuid = sections.uuid
JOIN schedules ON sections.schedule_uuid = schedules.uuid
JOIN course_offerings ON sections.course_offering_uuid = course_offerings.uuid
WHERE course_offerings.term_code=1172
```

4903

(7) How many instructors who have only one course on Tuesday in Fall 2016?

```
SELECT COUNT (InsNumber) FROM(
SELECT COUNT(*) AS InsNumber FROM
Instructors JOIN teachings ON instructors.id = teachings.instructor_id
JOIN sections ON teachings.section_uuid = sections.uuid
JOIN schedules ON sections.schedule_uuid = schedules.uuid
JOIN course_offerings ON sections.course_offering_uuid = course_offerings.uuid
WHERE schedules.tues=1 AND course_offerings.term_code=1172
GROUP BY instructors.id)
WHERE InsNumber=1
```

1259

(8) Find the course with the highest failing ratio in Fall 2016. Hint: A course can be opened in multiple terms, and there are several sections in each term.

```
SELECT course_offerings.name,  
SUM(grade_distributions.f_count)*1.0/( SUM(grade_distributions.a_count)+  
SUM(grade_distributions.ab_count )+ SUM(grade_distributions.b_count )+  
SUM(grade_distributions.bc_count )+SUM(grade_distributions.c_count )+  
SUM(grade_distributions.d_count )+ SUM(grade_distributions.f_count )+  
SUM(grade_distributions.s_count)+ SUM(grade_distributions.u_count )+  
SUM(grade_distributions.cr_count )+SUM(grade_distributions.n_count )+  
SUM(grade_distributions.p_count )+ SUM(grade_distributions.i_count )+  
SUM(grade_distributions.nw_count)+ SUM(grade_distributions.nr_count) +  
SUM(grade_distributions.other_count)) AS ratio FROM course_offerings JOIN  
grade_distributions ON  
course_offerings.uuid= grade_distributions.course_offering_uuid  
WHERE course_offerings.term_code = 1172  
GROUP BY course_offerings.uuid  
ORDER BY ratio  
DESC LIMIT 1
```

"Creative Writing: Playwriting"    "0.16666666666666667"

(9) Find the five most frequently used rooms in the record and how many times are these five rooms used?

```
SELECT rooms.room_code, COUNT(*) AS times FROM rooms JOIN sections ON rooms.uuid =  
sections.room_uuid  
GROUP BY rooms.uuid  
HAVING rooms.room_code IS NOT NULL  
ORDER BY COUNT(*) DESC LIMIT 5
```

"B200"    "912"

"2325"    "829"

"2317"    "763"

"126"    "708"

"125"     "707"

(10) Which instructor has the most quantity courses on weekends as is recorded?

```
SELECT instructors.name FROM instructors JOIN teachings ON instructors.id =  
teachings.instructor_id
```

```
JOIN sections ON teachings.section_uuid = sections.uuid
```

```
JOIN schedules ON sections.schedule_uuid = schedules.uuid
```

```
GROUP BY instructors.id
```

```
ORDER BY SUM(schedules.sat)+SUM(schedules.sun) DESC LIMIT 1
```

DONALD YANDOW

<u>uuid(text)</u>
name(text)
number(int)

courses

<u>uuid(text)</u>
course_uuid(text)
term_code(int)
name(text)

course offerings

<u>subject code(int)</u>
<u>course offering uuid(text)</u>

subject memberships

<u>code(int)</u>
name(text)
abbreviation(text)

subjects

<u>course offering_uuid(text)</u>
<u>section_number(int)</u>
a_count(int)
ab_count(int)
b_count(int)
bc_count(int)
c_count(int)
d_count(int)
f_count(int)
s_count(int)
u_count(int)
cr_count(int)
n_count(int)
p_count(int)
i_count(int)
nw_count(int)
nr_count(int)
other_count(int)

grade distributions

<u>id(int)</u>
name(text)

instructors

instructor_id(int)
<u>section_uuid(text)</u>

teachings

<u>uuid(text)</u>
start_time(int)
end_time(int)
mon(bool)
tues(bool)
wed(bool)
thurs(bool)
fri(bool)
sat(bool)
sun(bool)

schedules

<u>uuid(text)</u>
facility_code(int)
room_code(int)

rooms

<u>uuid(text)</u>
course_offering_uuid(text)
section_type(text)
number(int)
room_uuid(text)
schedule_uuid(text)

sections

composite  
primary key

composite  
primary  
key

Events  
Relationships  
Objects