*-- Q1: all core classes*

**SELECT** class\_id, class\_name

**FROM** class

**WHERE** class\_type = **'core'**;

*-- Q2: living in boise and taking CS410*

**SELECT** student\_id

**FROM** student

**JOIN** enrollment **USING** (student\_id)

**JOIN** section **USING** (section\_id)

**JOIN** class **USING** (class\_id)

**JOIN** department **USING** (dept\_id)

**WHERE** dept\_code = **'CS'**

**AND** class\_num = 410

**AND** student\_city = **'Boise'**

**AND** student\_state = **'ID'**

**AND** student\_country = **'USA'**

*-- Q3: undergrad GPA > 3.8*

**SELECT** student\_id, student\_name, *AVG*(grade\_point) **AS** GPA

**FROM** student

**JOIN** enrollment **USING** (student\_id)

**WHERE** student\_type = **'undergrad'**

**AND** grade\_point **IS NOT NULL**

**GROUP BY** student\_id

**HAVING** GPA > 3.8;

*-- Q4: students who have taken all core classes*

**SELECT** student\_id, student\_name

**FROM** student

**JOIN** enrollment **USING** (student\_id)

**JOIN** section **USING** (section\_id)

**JOIN** class **USING** (class\_id)

**WHERE** grade **IS NOT NULL** *-- \_have\_ taken, not are taking!*

**AND** class\_type = **'core'**

**GROUP BY** student\_id

*-- distinct to handle retakes*

**HAVING** *COUNT*(**DISTINCT** class\_id) =

(**SELECT** *COUNT*(class\_id) **FROM** class **WHERE** class\_type = **'core'**);

*-- let's be more realistic!*

**SELECT** student\_id, student\_name

**FROM** student

**JOIN** enrollment **USING** (student\_id)

**JOIN** section **USING** (section\_id)

**JOIN** class **USING** (class\_id)

**WHERE** grade **IS NOT NULL** *-- \_have\_ taken, not are taking!*

**AND** class\_type = **'core'**

**AND** class.dept\_id = student.dept\_id

**GROUP BY** student\_id

*-- distinct to handle retakes*

**HAVING** *COUNT*(**DISTINCT** class\_id) =

(**SELECT** *COUNT*(class\_id) **FROM** class c2

**WHERE** class\_type = **'core' AND** c2.dept\_id = student.dept\_id);

*-- Q5:Instructors teaching more than 3 classes*

**SELECT** inst\_id, inst\_name

**FROM** instructor

**JOIN** section **USING** (inst\_id)

**JOIN** class **USING** (class\_id)

**WHERE** class\_type = **'core'**

**GROUP BY** inst\_id

**HAVING** *COUNT*(class\_id) > 3; *-- can also do COUNT(DISTINCT class\_id)*

*-- Q6: Departments w/ most undergrads*

**SELECT** dept\_id, dept\_name, *COUNT*(student\_id) **AS** num\_students

**FROM** department

**JOIN** student **USING** (dept\_id)

**WHERE** student\_type = **'undergrad'**

**GROUP BY** dept\_id

**ORDER BY** num\_students **DESC**

**LIMIT** 10;

*-- Q7: least grads*

**SELECT** dept\_id, dept\_name, *COUNT*(student\_id) **AS** num\_students

**FROM** department

**JOIN** student **USING** (dept\_id)

**WHERE** student\_type = **'grad'**

**GROUP BY** dept\_id

**ORDER BY** num\_students **ASC**

**LIMIT** 10;

*-- Q8: Colleges w/ more than 10 departments*

**SELECT** college\_id, college\_name, *COUNT*(dept\_id) **AS** num\_depts

**FROM** college

**JOIN** department **USING** (college\_id)

**GROUP BY** college\_id

**HAVING** num\_depts > 10

**ORDER BY** num\_depts **DESC**;

*-- Q9: Teaching 100 students*

**SELECT** inst\_id, inst\_name

**FROM** instructor

**JOIN** section **USING** (inst\_id)

**JOIN** enrollment **USING** (section\_id)

**GROUP BY** inst\_id

**HAVING** *COUNT*(student\_id) > 100;

*-- Q10: Average # of students per term in CS121*

**SELECT** *AVG*(student\_count)

**FROM** (**SELECT** *COUNT*(student\_id) **AS** student\_count

**FROM** department **JOIN** class **USING** (dept\_id)

**JOIN** section **USING** (class\_id)

**JOIN** enrollment **USING** (section\_id)

**WHERE** dept\_code = **'CS' AND** class\_num = 121

**GROUP BY year**, term);