

XPath queries for courses.xml

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Questions and Output

- The third course (not the third section).

- Expression: `/courses/course[3]`

- Output:

```
Element='<course credits="4.0" number="368">
  <title>Introduction to Bioinformatics</title>
  <section delivery="Classroom" number="01">
    <enrollment>9</enrollment>
    <room>AT102</room>
    <instructor>
      <first>Chi-Cheng</first>
      <last>Lin</last>
    </instructor>
    <instructor>
      <first>Mingrui</first>
      <last>Zhang</last>
    </instructor>
  </section>
</course>'
```

TEXT

- The second 4 credits course.

- Expression: `/courses/course[@credits=4.0][2]`

- Output:

TEXT

```
Element='<course credits="4.0" number="368">
  <title>Introduction to Bioinformatics</title>
  <section delivery="Classroom" number="01">
    <enrollment>9</enrollment>
    <room>AT102</room>
    <instructor>
      <first>Chi-Cheng</first>
      <last>Lin</last>
    </instructor>
    <instructor>
      <first>Mingrui</first>
      <last>Zhang</last>
    </instructor>
  </section>
</course>'
```

- All the sections using “Classroom” delivery.
 - Expression: `/courses/course/section[@delivery='Classroom']`
 - Output:

TEXT

```
Element='<section delivery="Classroom" number="01">
  <enrollment>15</enrollment>
  <room>EA244</room>
  <instructor>
    <first>Nicole</first>
    <last>Anderson</last>
  </instructor>
</section>'
```

```
Element='<section delivery="Classroom" number="03">
  <enrollment>12</enrollment>
  <room>SH102</room>
  <instructor>
    <first>Mark</first>
    <last>Funk</last>
  </instructor>
</section>'
```

```
Element='<section delivery="Classroom" number="01">
  <enrollment>26</enrollment>
  <room>ST108</room>
  <instructor>
    <first>Nicole</first>
    <last>Anderson</last>
  </instructor>
</section>'
```

```
Element='<section delivery="Classroom" number="01">
  <enrollment>9</enrollment>
  <room>AT102</room>
  <instructor>
    <first>Chi-Cheng</first>
    <last>Lin</last>
  </instructor>
  <instructor>
    <first>Mingrui</first>
    <last>Zhang</last>
  </instructor>
</section>'
```

- All the courses taught by instructor with last name Anderson.
 - Expression: /courses/course[section/instructor/last/text()='Anderson']
 - Output:

TEXT

```

Element='<course credits="4.0" number="341">
  <title>Data Structures</title>
  <section delivery="Classroom" number="01">
    <enrollment>15</enrollment>
    <room>EA244</room>
    <instructor>
      <first>Nicole</first>
      <last>Anderson</last>
    </instructor>
  </section>
  <section delivery="Online" number="02">
    <enrollment>10</enrollment>
    <instructor>
      <first>Nicole</first>
      <last>Anderson</last>
    </instructor>
    <instructor>
      <first>Chi-Cheng</first>
      <last>Lin</last>
    </instructor>
  </section>
  <section delivery="Classroom" number="03">
    <enrollment>12</enrollment>
    <room>SH102</room>
    <instructor>
      <first>Mark</first>
      <last>Funk</last>
    </instructor>
  </section>
</course>'

```

```

Element='<course credits="3.0" number="385">
  <title>Applied Database Management Systems</title>
  <section delivery="Classroom" number="01">
    <enrollment>26</enrollment>
    <room>ST108</room>
    <instructor>
      <first>Nicole</first>
      <last>Anderson</last>
    </instructor>
  </section>
</course>'

```

- All the sections that has an enrollment smaller than 14.
 - Expression: /courses/course/section[enrollment/text()<14]
 - Output:

```

Element='<section delivery="Online" number="02">
  <enrollment>10</enrollment>
  <instructor>
    <first>Nicole</first>
    <last>Anderson</last>
  </instructor>
  <instructor>
    <first>Chi-Cheng</first>
    <last>Lin</last>
  </instructor>
</section>'

```

```

Element='<section delivery="Classroom" number="03">
  <enrollment>12</enrollment>
  <room>SH102</room>
  <instructor>
    <first>Mark</first>
    <last>Funk</last>
  </instructor>
</section>'

```

```

Element='<section delivery="Classroom" number="01">
  <enrollment>9</enrollment>
  <room>AT102</room>
  <instructor>
    <first>Chi-Cheng</first>
    <last>Lin</last>
  </instructor>
  <instructor>
    <first>Mingrui</first>
    <last>Zhang</last>
  </instructor>
</section>'

```

```

Element='<section delivery="Online" number="01">
  <enrollment>10</enrollment>
  <instructor>
    <first>Chi-Cheng</first>
    <last>Lin</last>
  </instructor>
</section>'

```

- All the instructors teaching the course titled “Data Structures.”
 - Expression: /courses/course/section/instructor[/courses/course/title/text()='Data Structures']
 - Output:

```
Element='<instructor>
  <first>Nicole</first>
  <last>Anderson</last>
</instructor>'
```

```
Element='<instructor>
  <first>Nicole</first>
  <last>Anderson</last>
</instructor>'
```

```
Element='<instructor>
  <first>Chi-Cheng</first>
  <last>Lin</last>
</instructor>'
```

```
Element='<instructor>
  <first>Mark</first>
  <last>Funk</last>
</instructor>'
```

```
Element='<instructor>
  <first>Nicole</first>
  <last>Anderson</last>
</instructor>'
```

```
Element='<instructor>
  <first>Chi-Cheng</first>
  <last>Lin</last>
</instructor>'
```

```
Element='<instructor>
  <first>Mingrui</first>
  <last>Zhang</last>
</instructor>'
```

```
Element='<instructor>
  <first>Chi-Cheng</first>
  <last>Lin</last>
</instructor>'
```

```
Element='<instructor>
  <first>Chi-Cheng</first>
  <last>Lin</last>
</instructor>'
```

- All the sections that are co-taught by two instructors.
 - Expression: /courses/course/section[count(instructor)=2]

○ Output:

TEXT

```
Element='<section delivery="Online" number="02">
  <enrollment>10</enrollment>
  <instructor>
    <first>Nicole</first>
    <last>Anderson</last>
  </instructor>
  <instructor>
    <first>Chi-Cheng</first>
    <last>Lin</last>
  </instructor>
</section>'
```

```
Element='<section delivery="Classroom" number="01">
  <enrollment>9</enrollment>
  <room>AT102</room>
  <instructor>
    <first>Chi-Cheng</first>
    <last>Lin</last>
  </instructor>
  <instructor>
    <first>Mingrui</first>
    <last>Zhang</last>
  </instructor>
</section>'
```

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