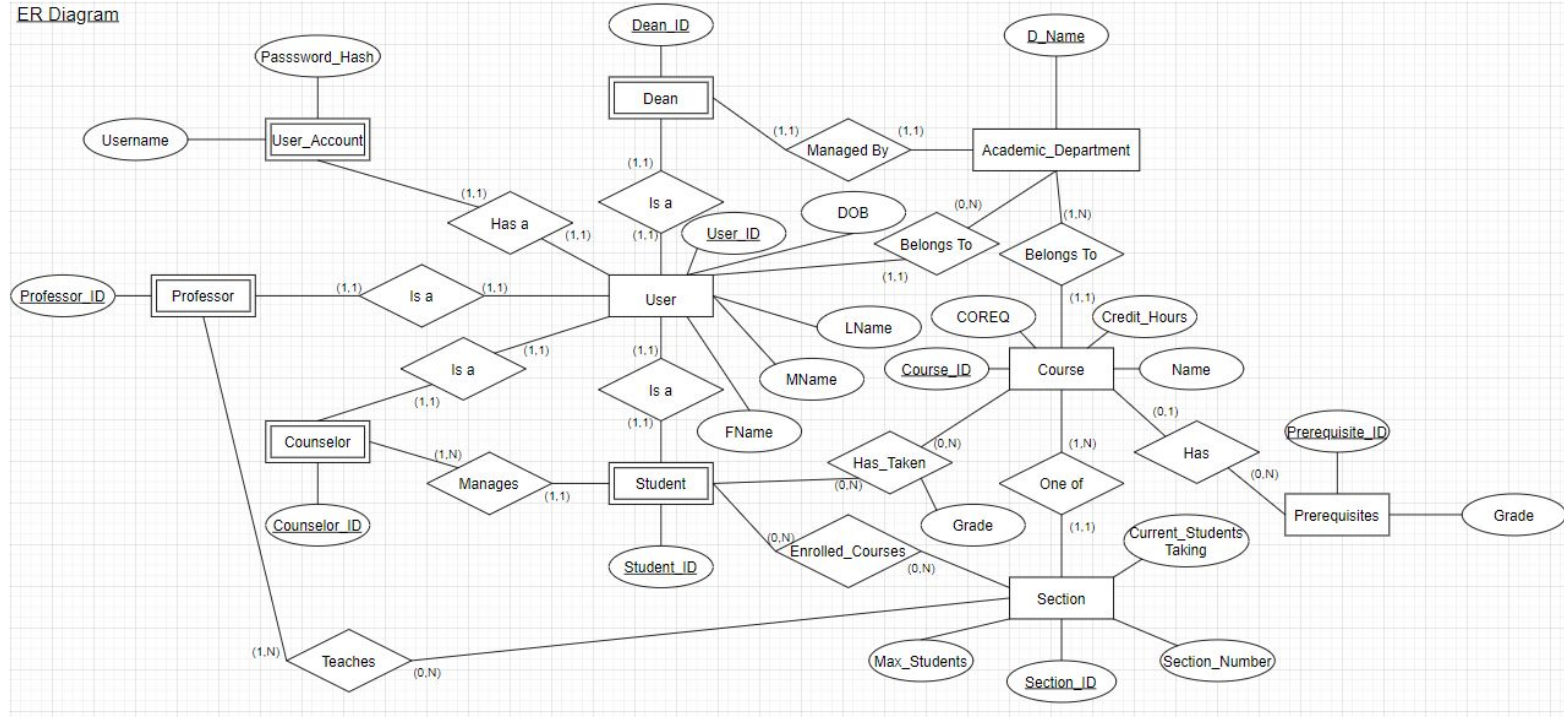


# Course Registration System

By: Antonio Ramaj, Rakin Hasan, Patrick Drury, Nasif  
Mahmood, Roberto Jimenez

# ER Diagram

ER Diagram



# Tables

|   | D_Name | Dean_ID |
|---|--------|---------|
| ▶ | CS     | 7       |
|   | SOM    | 8       |
|   | BBS    | 9       |
|   | A&H    | 10      |
|   | IS     | 11      |
|   | NSM    | 12      |
| ★ | NULL   | NULL    |

|   | Admin_ID |
|---|----------|
| ▶ | 19       |
| ★ | NULL     |

|   | Counselor_ID |
|---|--------------|
| ▶ | 44           |
|   | 45           |
|   | 46           |
|   | 47           |
|   | 48           |
|   | 49           |
| ★ | NULL         |

|   | Professor_ID |
|---|--------------|
| ▶ | 13           |
|   | 14           |
|   | 15           |
|   | 16           |
|   | 17           |
|   | 18           |
| ★ | NULL         |

|   | Student_ID | Section_ID |
|---|------------|------------|
| ▶ | 39         | 1          |
|   | 40         | 1          |
|   | 41         | 1          |
|   | 42         | 1          |
| ★ | NULL       | NULL       |

|   | Dean_ID |
|---|---------|
| ▶ | 7       |
|   | 8       |
|   | 9       |
|   | 10      |
|   | 11      |
|   | 12      |
| ★ | NULL    |

|   | Course_ID | Name  | Credit_Hours | D_Name | Corequisite_ID |
|---|-----------|---|--------------|--------|----------------|
| ▶ | AHST 1101 | Introduction to Art History                     | 3            | A&H    | NULL           |
|   | CS 3162   | Professional Responsibility in Computer Science | 1            | CS     | NULL           |
|   | CS 3345   | Data Structures and Algorithms                  | 3            | CS     | NULL           |
|   | CS 4347   | Database Systems                                | 3            | CS     | NULL           |
|   | CS 4361   | Computer Graphics                               | 3            | CS     | MATH 2418      |
|   | CS 4392   | Computer Animation                              | 3            | CS     | NULL           |
|   | ECS 4308  | Technical Communications                        | 3            | CS     | NULL           |
|   | GOVT 2107 | Government and Politics                         | 1            | IS     | NULL           |
|   | GOVT 2306 | State Nameand Local Government                  | 3            | IS     | NULL           |
|   | MATH 2417 | Calculus 1                                      | 4            | NSM    | NULL           |
|   | MATH 2418 | Linear Algebra                                  | 4            | NSM    | NULL           |
|   | MIS 6308  | System Analysis and Project Management          | 3            | SOM    | NULL           |
|   | NSC 3344  | Anatomy and Physiology of Speech and Hearing    | 3            | BBS    | NULL           |
| ★ | NULL      | NULL  | NULL         | NULL   | NULL           |

|   | Student_ID | Course_ID | Grade |
|---|------------|-----------|-------|
| ▶ | 39         | CS 3345   | A-    |
|   | 40         | GOVT 2107 | D+    |
|   | 41         | AHST 1101 | C-    |
|   | 42         | MIS 6308  | B     |
| ★ | NULL       | NULL      | NULL  |

|   | Course_ID | REQUIRED_GRADE | Prerequisite_ID |
|---|-----------|----------------|-----------------|
| ▶ | CS 3162   | C+             | CS 3345         |
|   | CS 4392   | D-             | CS 4361         |
|   | GOVT 2306 | D-             | GOVT 2107       |
|   | MATH 2418 | D-             | MATH 2417       |
| ★ | NULL      | NULL           | NULL            |

# Tables

|   | Course_ID | Section_ID | Section_Number | Professor_ID | Max_students | Current_students_taking |
|---|-----------|------------|----------------|--------------|--------------|-------------------------|
| ▶ | AHST 1101 | 1          | 001            | 13           | 40           | 40                      |
|   | MIS 6308  | 13         | 013            | 15           | 30           | 0                       |
|   | NSC 3344  | 25         | 025            | 14           | 25           | 10                      |
|   | CS 4361   | 55         | 055            | 16           | 50           | 2                       |
| * | NULL      | NULL       | NULL           | NULL         | NULL         | NULL                    |

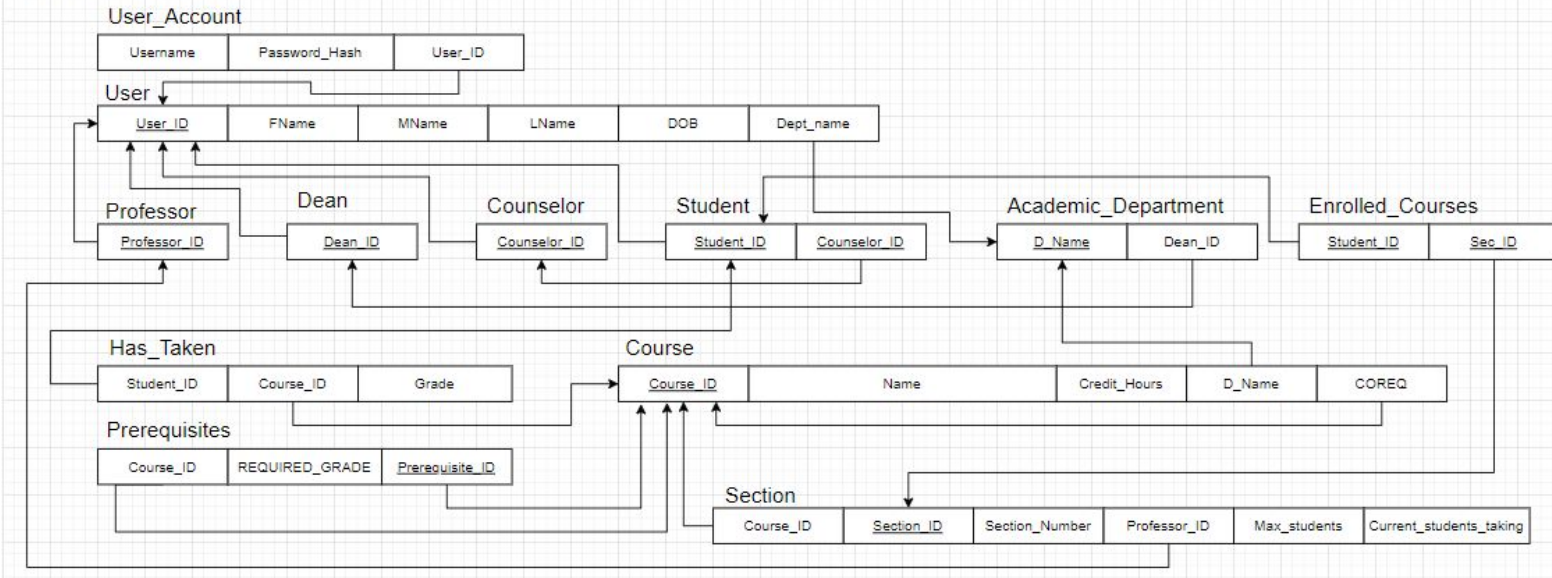
|   | Student_ID | Counselor_ID |
|---|------------|--------------|
| ▶ | 39         | 44           |
|   | 40         | 44           |
|   | 38         | 45           |
|   | 42         | 46           |
|   | 43         | 46           |
|   | 41         | 48           |
| * | NULL       | NULL         |

|   | Username | Password_Hash       | User_ID |
|---|----------|---------------------|---------|
| ▶ | Chimo    | adsadgbfhdf53t      | 49      |
|   | David    | SO32424324dasdasM   | 16      |
|   | Dennis   | asdasd3243242       | 48      |
|   | Denton   | Nee1123S32424M      | 18      |
|   | Diane    | asdasd324324        | 45      |
|   | Janne    | I32432432dsadS      | 17      |
|   | Jared    | sasdasd34324ad      | 19      |
|   | Jay      | asdasd324423432f    | 44      |
|   | Kilikina | asdasd324324        | 47      |
|   | Lanzo    | B324342dsadasBS     | 15      |
|   | Priya    | Asadsad&3242342dH   | 14      |
|   | Sherman  | Casdasdasdsa342532S | 13      |
|   | Suljo    | asdsad21232413      | 46      |
| * | NULL     | NULL                | NULL    |

|   | User_ID | FName      | MName | LName      | DOB        | Dept_Name |
|---|---------|------------|-------|------------|------------|-----------|
| ▶ | 7       | Paulius    | T     | Jasmina    | 1958-01-29 | CS        |
|   | 8       | Lucia      | P     | Misa       | 1973-05-11 | SOM       |
|   | 9       | Ofir       | NULL  | Pantaleon  | 1950-12-02 | BBS       |
|   | 10      | Aleksandra | O     | Gayatri    | 1972-02-12 | A&H       |
|   | 11      | Rong       | T     | Odette     | 1964-07-05 | IS        |
|   | 12      | Alex       | D     | Stacee     | 1970-09-12 | NSM       |
|   | 13      | Sherman    | NULL  | Briar      | 1975-05-25 | CS        |
|   | 14      | Priya      | M     | Celso      | 1962-08-16 | A&H       |
|   | 15      | Lanzo      | V     | Gwendal    | 1980-11-05 | BBS       |
|   | 16      | David      | A     | Olufunke   | 1968-09-30 | SOM       |
|   | 17      | Janne      | B     | Zafar      | 1974-06-25 | IS        |
|   | 18      | Denton     | O     | Anwar      | 1963-02-12 | NSM       |
|   | 19      | Jared      | H     | Hanes      | 1950-06-01 | NULL      |
|   | 38      | Adrian     | T     | Marica     | 2000-08-28 | CS        |
|   | 39      | Arete      | D     | Sundri     | 1995-12-22 | A&H       |
|   | 40      | Corey      | L     | Gulruk     | 1992-10-21 | CS        |
|   | 41      | Alyosha    | NULL  | Benedicta  | 1980-01-23 | SOM       |
|   | 42      | Hasib      | A     | Hilarius   | 2002-07-23 | IS        |
|   | 43      | Andrej     | O     | Clotho     | 1995-03-11 | NSM       |
|   | 44      | Jay        | R     | Areih      | 1976-03-02 | CS        |
|   | 45      | Diane      | O     | Jure       | 1965-05-12 | SOM       |
|   | 46      | Suljo      | I     | Teboho     | 1945-12-23 | BBS       |
|   | 47      | Kilikina   | S     | Kelly      | 1953-04-26 | A&H       |
|   | 48      | Dennis     | E     | Ipai       | 1960-01-21 | IS        |
|   | 49      | Chimo      | NULL  | Donndub... | 1976-06-04 | NSM       |
| * | NULL    | NULL       | NULL  | NULL       | NULL       | NULL      |

# Relations

## Relations Schema





# Normalization

## Functional Dependencies (3NF)

User\_Account

| Username     | Password_Hash    | User_ID |
|--------------|------------------|---------|
| Briar_She02  | d9f8s@HD0!\$cdf  | 195628  |
| Priya_MCeI00 | 02hr30H309hxF@H  | 581650  |
| Lanzo_VGwe48 | 2MFJDS0Inf!\$%mf | 937659  |
| David_AOLu   | *j123FH!@hjsSDF  | 703758  |
| Jay_RAri     | SD23fn0#!%mds    | 860546  |
| Diane_OJur   | 62mFS34\$^Gk#\$  | 472650  |

User

| User_ID | FName      | MName | LName      | DOB        | Dept_name |
|---------|------------|-------|------------|------------|-----------|
| 195628  | Sherman    | NULL  | Briar      | 1975-05-25 | CS        |
| 581650  | Priya      | M     | Celso      | 1962-08-16 | A&H       |
| 937659  | Lanzo      | V     | Gwendal    | 1980-11-05 | BBS       |
| 703758  | David      | A     | Olufunke   | 1968-09-30 | SOM       |
| 058628  | Janne      | B     | Zafar      | 1974-06-25 | IS        |
| 759264  | Denton     | O     | Anwar      | 1963-02-12 | NSM       |
| 860546  | Jay        | R     | Areih      | 1976-03-02 | CS        |
| 472650  | Diane      | O     | Jure       | 1965-05-12 | SOM       |
| 217957  | Suljo      | I     | Teboho     | 1945-12-23 | BBS       |
| 268174  | Killikina  | S     | Kelly      | 1953-04-26 | A&H       |
| 174796  | Denis      | E     | Ipati      | 1960-01-21 | IS        |
| 586903  | Chimo      | NULL  | Donndubhan | 1976-06-04 | NSM       |
| 906873  | Adrian     | T     | Marica     | 2000-08-28 | CS        |
| 148046  | Arete      | D     | Sundri     | 1995-12-22 | A&H       |
| 258607  | Corey      | L     | Gulrukh    | 1992-10-21 | CS        |
| 386951  | Alyosha    | NULL  | Benedicta  | 1980-01-23 | SOM       |
| 586706  | Hasib      | A     | Hilarius   | 2002-07-23 | IS        |
| 476092  | Andrej     | O     | Clotho     | 1995-03-11 | NSM       |
| 582749  | Paulius    | T     | Jasmina    | 1958-01-29 | CS        |
| 692749  | Lucia      | P     | Misa       | 1973-05-11 | SOM       |
| 040586  | Ofir       | NULL  | Pantaleon  | 1950-12-02 | BBS       |
| 695738  | Aleksandra | O     | Gayatri    | 1972-02-12 | A&H       |
| 599040  | Rong       | T     | Odette     | 1964-07-05 | IS        |
| 860030  | Alex       | D     | Stacee     | 1970-09-12 | NSM       |

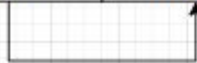
# Normalization

Student

| <u>Student ID</u> | <u>Counselor ID</u> |
|-------------------|---------------------|
| 906873            | 860546              |
| 148046            | 268174              |
| 258607            | 860546              |
| 386951            | 472650              |
| 586706            | 174796              |
| 476092            | 586903              |

Dean

| <u>Dean ID</u> |
|----------------|
| 582749         |
| 692749         |
| 040586         |
| 695738         |
| 599040         |
| 860030         |



# Normalization

Academic\_Department

| <u>D_Name</u> | Dean_ID |
|---------------|---------|
| CS            | 582749  |
| BBS           | 695738  |
| A&H           | 692749  |
| SOM           | 040586  |
| IS            | 599040  |
| NSM           | 860030  |

Has\_Taken

| Student_ID | Course_ID | Grade |
|------------|-----------|-------|
| 258607     | CS 3345   | A-    |
| 148046     | GOVT 2107 | D+    |
| 906873     | AHST 1101 | C-    |
| 386951     | MIS 6308  | B     |

Professor

| <u>Professor_ID</u> |
|---------------------|
| 195628              |
| 581650              |
| 937659              |
| 703758              |
| 058628              |
| 759264              |

Counselor

| <u>Counselor_ID</u> |
|---------------------|
| 860546              |
| 472650              |
| 217957              |
| 268174              |
| 174796              |
| 586903              |

Enrolled\_Courses

| <u>Student_ID</u> | <u>Sec_ID</u> |
|-------------------|---------------|
| 906873            | 13            |
| 258607            | 55            |
| 386951            | 1             |
| 148046            | 25            |



# Normalization

Course

| <u>Course_ID</u> | Name   | Credit_Hours | D_Name | COREQ   |
|------------------|--|--------------|--------|---------|
| GOVT 2306        | State and Local Government                               | 3            | IS     | NULL    |
| AHST 1101        | Introduction to Art History                              | 3            | A&H    | NULL    |
| CS 4361          | Computer Graphics  | 3            | CS     | CS 4347 |
| CS 4347          | Database Systems   | 3            | CS     | CS 4361 |
| ECS 4308         | Technical Communications                                 | 3            | CS     | NULL    |
| MIS 6308         | System Analysis and Project Management                   | 3            | SOM    | NULL    |
| NSC 3344         | Anatomy and Physiology of Speech and Hearing             | 3            | BBS    | NULL    |
| CS 4392          | Computer Animation                                       | 3            | CS     | NULL    |
| MATH 2418        | Linear Algebra   | 4            | NSM    | NULL    |
| MATH 2417        | Calculus I   | 4            | NSM    | NULL    |
| CS 3162          | Professional Responsibility in Computer Science          | 1            | CS     | NULL    |
| CS 3345          | Data Structures and Introduction to Algorithmic Analysis | 3            | CS     | NULL    |
| GOVT 2107        | Government and Politics                                  | 1            | IS     | NULL    |



# Normalization

Section1

| <u>Section_ID</u> | Section_Number | Professor_ID | Max_students | Current_students_taking |
|-------------------|----------------|--------------|--------------|-------------------------|
| 1                 | 001            | 581650       | 40           | 40                      |
| 55                | 055            | 195628       | 50           | 2                       |
| 13                | 013            | 703758       | 30           | 0                       |
| 25                | 025            | 937659       | 25           | 10                      |

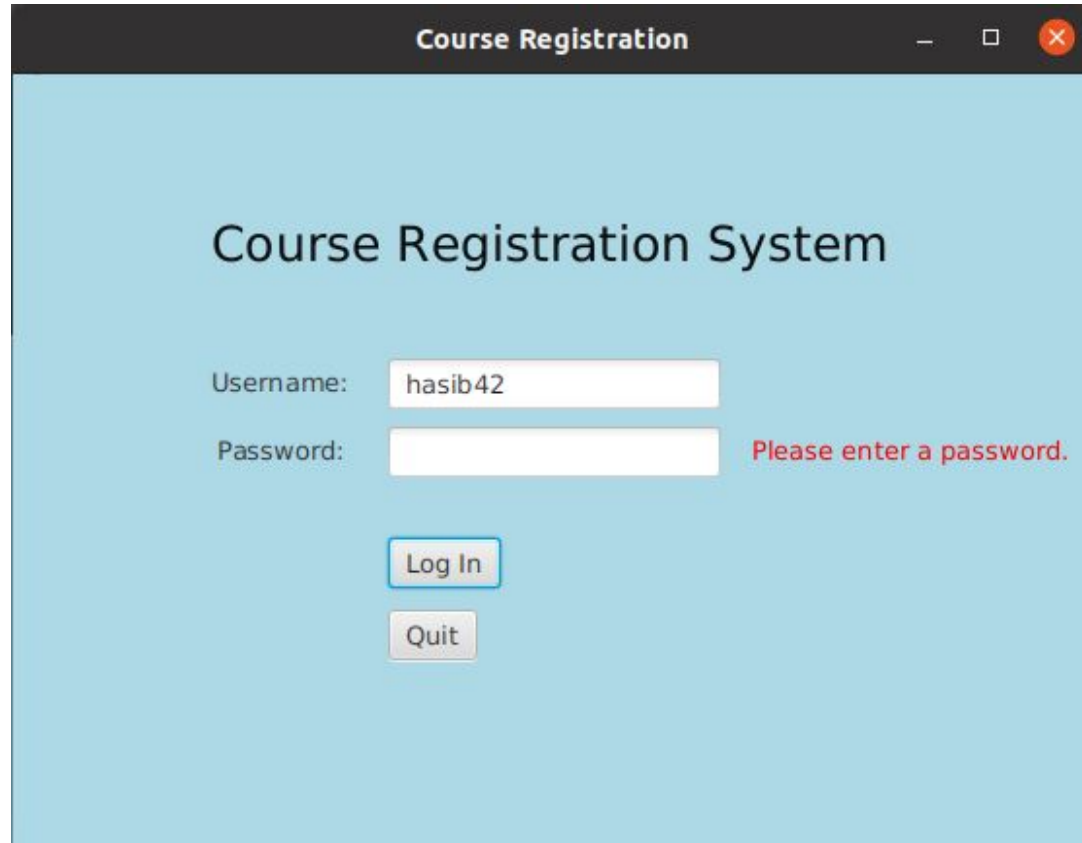
Prerequisites

| Course_ID | REQUIRED_GRADE | <u>Prerequisite_ID</u> |
|-----------|----------------|------------------------|
| CS 4392   | D-             | CS 4361                |
| MATH 2418 | D-             | MATH 2417              |
| CS 3162   | C+             | CS 3345                |
| GOVT 2306 | D-             | GOVT 2107              |

Section2

| Course_ID | <u>Section_ID</u> |
|-----------|-------------------|
| AHST 1101 | 1                 |
| CS 4361   | 55                |
| MIS 6308  | 13                |
| NSC 3344  | 25                |

# Demo (Login Screen)



A screenshot of a web application window titled "Course Registration". The window has a dark gray title bar with standard minimize, maximize, and close buttons. The main content area has a light blue background. At the top, the text "Course Registration System" is displayed in a large, dark font. Below this, there are two input fields. The first is labeled "Username:" and contains the text "hasib42". The second is labeled "Password:" and is empty. To the right of the password field, there is a red error message: "Please enter a password.". Below the input fields, there are two buttons: "Log In" and "Quit".

Course Registration

## Course Registration System

Username:

Password:

Please enter a password.

# Demo (Student view of application)

Course Registration

Back

Student: Arete D Sundri: A&H  
User\_ID: 39  
Counselor: Jay R Areih  
Counselor\_ID: 44

View Enrolled Courses

View Course History

Add Courses

Remove Courses

Quit

Course Registration

Back

Course History for Arete D Sundri

| Course_ID | Grade |
|-----------|-------|
| CS 3345   | 90    |
| CS 4347   | 76    |
| ECS 4308  | 80    |
|           |       |
|           |       |
|           |       |

Quit

Course Registration

Back

Enrolled Courses for Arete D Sundri

| Course        | Course Name                       | Professor       |
|---------------|-----------------------------------|-----------------|
| AHST 1101.001 | Introduction to Art History       | Sherman Briar   |
| MIS 6308.013  | System Analysis and Project Ma... | Lanzo V Gwendal |
| NSC 3344.025  | Anatomy and Physiology of Spe...  | Priya M Celso   |
| MATH 2417.7   | Calculus 1                        | Denton O Anwar  |
|               |                                   |                 |
|               |                                   |                 |

Remove Course

Quit