

Date: October 27, 2014
To: Academic Senate Committees
From: Divisional Chair André Knoesen
Subject: Academic Senate Review: Prerequisite Enforcement Process

Last year the Undergraduate Council requested enforcement of Davis Divisional Regulation (DDR) 527 (Course Prerequisites):

- (A) “The instructor in charge of a course is responsible for determining that enrolled students have completed the prerequisite course(s) listed in the General Catalog. Students who have completed equivalent work may be admitted to the course at the instructor's discretion.
- (B) The instructor in charge of a course may request that the Registrar drop from the course any student who has enrolled without completing the published prerequisites if, in the judgment of the instructor, failure to have completed that work seriously reduces the probability that the student will successfully complete the course. An instructor who intends to exclude a student for this reason must notify the student before taking action. (Am. 4/19/99; effective 9/1/99).”

Undergraduate Council's proposal was forwarded for commentary by Committee on Elections Rules and Jurisdiction as well as Committee on Courses of Instruction. All agreed that the regulations currently allow enforcement of prerequisites. However, the systems and processes in place to enforce prerequisites are not intuitive and place a workload burden on faculty. Additionally, some academic units would rather provide students with a recommended course pathway rather than, or in addition to, a prerequisite. The issue was discussed by the Executive Council in May 2014. The Executive Council asked the Academic Senate Chair to provide the Campus Registrar with a set of requirements to guide development of a system or processes needed to enforce prerequisites (copy enclosed).

The Campus Registrar submitted specifications for a system he will provide in alignment with requirements set forth in the Academic Senate Chair's letter. As committees review the system specifications, please ask yourself the following questions:

- Will the system described support faculty enforcement of prerequisites?
- Does the system provide an efficient process for communication between students and faculty members concerning prerequisites?

May 1, 2014

ELIAS LOPEZ, REGISTRAR
Office of the University Registrar

RE: Prerequisite Management

As you are aware, Davis Division Regulation 527 sets forth campus course prerequisite policy. As the student body has increased, so has the need for automated tools to assist faculty members in effectively and efficiently managing prerequisites. I appreciate your willingness to oversee development of an automated tool to assist faculty and students with prerequisite management.

Faculty, departments and colleges routinely review and update courses including prerequisites. Therefore, through the course approval process, course prerequisites are recorded and communicated to our students via the catalog. Thus, we see no need to require a wholesale revision of course prerequisites. We also recognize some faculty would rather communicate preparatory course recommendations (recommended) rather than enforce prerequisites. Therefore, we ask that you ensure the new course approval system, currently being purchased, allows departments to input prerequisite and/or recommended courses.

Many faculty members have expressed concern that automated prerequisite management should maximize communication with our students, assure academic freedom and allow faculty to enforce prerequisites efficiently. To achieve these goals, we would like the system developed or systems your office currently manages to address the following needs/requirements:

- Courses currently listing prerequisites should be “opt in” by default, enforcing prerequisites.
- The instructor in charge should be able to select the degree of prerequisite enforcement by course:
 - Prerequisite enforcement (default, see above).
 - Prerequisite enforcement with the ability to generate an automated message from the student to instructor requesting an exception.
 - Non-enforcement of prerequisites
- Departments should be alerted that any courses currently designated as “prerequisite” will be treated as required courses. Departments may submit a course change removing the “prerequisite” designation or list the courses as “recommended.”
- The automated tool should create a registration system that is clear and transparent for the student and faculty member. Furthermore, the system should be designed to quickly and efficiently allow the instructor in charge to make a determination and communicate results automatically. At the time of registration, students should receive a notification that they are attempting to enroll in course in which they have not fulfilled the prerequisite.
- Students and faculty members should be given ample notice about the creation of a system which enforces prerequisites at the time of registration and about the process for appealing and granting exceptions, as described above. All of this information should be clearly presented and explained in the catalog and on appropriate websites.

- Effective April 8, 2014, the Committee on Courses of Instruction (COCI) no longer reviews “new version” (change/update) course proposals that only change/update the prerequisite field in the current course approval system (ICMS) or the prerequisite and/or recommended course fields in the new system.
 - Such changes will continue to be reviewed at the department and college level.
 - However, prerequisite changes that affect multiple colleges should be flagged in the new system to ensure that appropriate cross-college consultation occurs and record the outcomes.
 - In the new course approval system, the workflow should be managed in a way that if the prerequisite/recommended course is the only field updated, then the course will go straight from the department chair to the college for approval and then to the catalog.
 - Any additional revisions to a course will still need to come through COCI. COCI will also continue to review prerequisite and recommended course designations as part of our review of “new” course proposals.

As we are acutely aware, the system will have a significant impact on undergraduate education at UC Davis. Therefore, in fall quarter 2014, we would appreciate presentation of a written proposal describing the prerequisite enforce system you envision. At a minimum, the documents will be sent to Undergraduate Council and Committee on Courses of Instruction for feedback prior to full scale development and implementation.

Sincerely,



Bruno Nachtergaele, Chair
Davis Division of the Academic Senate
Professor: Mathematics

- c: Committee on Courses of Instruction Chair Potter
- Committee on Elections Rules and Jurisdiction Chair Rocke
- Undergraduate Council Chair Traxler



OFFICE OF THE UNIVERSITY REGISTRAR

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October 10, 2014

Andre Knoesen, Chair
Davis Division of the Academic Senate

RE: Prerequisite Management Proposal

In May 2014 the Office of the University Registrar received guidelines for developing an automated prerequisite management system. As requested we are providing a written proposal describing our vision for a prerequisite enforcement system with as much detail as could be included at the moment and with the understanding that there will be opportunities to gather faculty feedback and input regarding some of the development areas. Our goal is to create a system that services the students and faculty as well, as simply and efficiently as possible. It is our expectation, as in accord with your May letter, that a meeting will be scheduled to present our vision to those interested in this project sometime in Fall 2014, which will include members of UGC and COCI at a minimum.

Occasionally when developing systems like this it is very helpful to have consistent partners that can speak to faculty issues when they come up. It would be beneficial if the Senate could provide one or two faculty volunteers that can be available to us for questions and clarification from a faculty perspective. We do not expect their commitment would require regularly scheduled meetings, rather to be on-call as a consultant.

We look forward to hearing from you with a meeting schedule plan.

Sincerely,

A handwritten signature in black ink, appearing to read "Elias Lopez".

Elias Lopez
University Registrar

c: Gina Anderson
Carolyn de la Peña
Adela de la Torre
Matt Traxler
Lora Jo Bossio
Viji Murali
Barbara Noble
Brad Harding
Monica Foxvog

Not Enforceable Until Approved by the Academic Senate

PROPOSAL FOR PREREQUISITE IMPLEMENTATION AT UC DAVIS

*PREPARED AT THE REQUEST OF THE
ACADEMIC SENATE
DAVIS DIVISION*

*Submitted by
The Office of the University Registrar
Student Affairs Office of Technology
October 2014*

CONTENTS

Proposal Summary	1
Rule Collection and Encoding	2
Prerequisite Enforcement.....	3
Faculty and Student Communication/Messaging Tool.....	4
Campus Training and Communication	6
Timelines and Project at a Glance	7
Project Timeline	7
scope of Project at a Glance (PHase I)	8
Future Project Needs	8
Appendix: Letter from Academic Senate	9

PROPOSAL SUMMARY

On May 1, 2014, the Office of the University Registrar (OUR) received a letter with directives from the Academic Senate to oversee development of an automated tool to assist faculty and students with prerequisite management. The letter further states that automated prerequisite management should maximize communication with our students, assure academic freedom and allow faculty to enforce prerequisite efficiently.

Below is our proposal describing the proposed implementation of prerequisites at UC Davis. The project has the following three major components.

1. Rule Collection and Encoding
2. Prerequisite Enforcement
3. Campus Training and Communication

There are a few items not in the scope of work such as placement exams and transfer credit.

It is important to understand that accurate checking of prerequisites at registration includes the ability to check placement exam scores, AP and IB scores, UC Davis coursework and transfer credit. Incorporating a check of all of these data repositories will not be accomplished in the initial rollout of the project but will be an ongoing goal.

Transfer credit plays a very important role in prerequisite checking. The articulation of transfer credit is a process that needs to be reviewed on this campus and falls outside the scope of this project. We will include transfer credit data that is available when checking student history for prerequisite fulfillment. There will be times when students have taken courses that are not articulated to UC Davis courses and will require faculty to make individual decisions about a student's course readiness. After rollout of the initial prerequisite checking tools, OUR intends to continue development of tools that will improve service to faculty and students by including as much transfer credit articulation evaluations as possible. **These projects will not be completed for the initial roll out of prerequisite checking.**

RULE COLLECTION AND ENCODING

Project Leader: Monica Foxvog, ICMS Business Systems Analyst

"...through the course approval process, course prerequisites are recorded and communicated to our students via the catalog. Thus, we see no need to require a wholesale revision of course prerequisites."

Below are the proposed steps in the rule collection and encoding process:

1. The Office of the University Registrar (OUR) will interpret prerequisite rules from the existing course approval forms which contain the rules that appear in the catalog.
2. These prerequisite rules will be entered into Banner directly by OUR, using consistent guidelines for interpretation.
3. A web tool and/or reports will be provided to assist departments in understanding how Banner will apply the rules at time of registration.
4. A method for departments to communicate with OUR regarding their Banner prerequisites will be established. Minor differences of interpretation (those that do not require any adjustment to the course form) will be corrected by OUR. If there is more than a difference of opinion in the prerequisite interpretation and OUR determines the form requires adjustment, the department will be asked to update their prerequisites on their course form using ICMS.

Furthermore, when building the new Governet ICMS product OUR will:

- Create a workflow for "prerequisite only" changes that bypasses COCI approval
- Assure that any "prerequisite changes that include other course changes will be routed through the COCI workflow for approval

PREREQUISITE ENFORCEMENT

Project Leader: Brad Harding, OUR IT Technology Director

"Courses currently listing prerequisites should be "opt in" by default, enforcing prerequisites."

As noted above, OUR will begin entering rules in Banner for existing course prerequisites. The new enforcement system developed will consider a course with an approved prerequisite as "opt in", in other words the system will enforce required prerequisites as a default. Any instructor teaching a section of any approved course will have the ability to "opt out" or turn off prerequisite checking if they so desire.

Note: it is very important to know that the timing of the instructor's decision to enforce prerequisites will be extremely important for maintaining equity for all students. Instructors will have the ability to change their prerequisite enforcement setting up until the time that students begin registration for each term. After registration begins a change in enforcement setting could impact students positively or negatively causing frustration and concern from students resulting in excessive work for faculty and staff trying to sort out how to resolve the fairness issues. The system will be developed to prevent those fairness issues from occurring.

"The instructor in charge should be able to select the degree of prerequisite enforcement by course CRN:

- Prerequisite enforcement (default, see above). (Strict Opt In)
- Prerequisite enforcement with the ability to generate an automated message from the student to instructor requesting an exception. (Opt In With Exceptions)
- Non-enforcement of prerequisites" (Opt Out)

Our understanding of the three options are:

Strict Opt In: Prerequisite rules in Banner will verify that the rule has been met and if yes allow registration, if no, prevent registration. The student would get a message that the prerequisite has not been met so they cannot enroll in the course.

Opt in With Exceptions: With this option students would try to register for the course but the system informs them that they have not met the prerequisite. A messaging system would allow communication between instructor and student (this will be discussed in more detail later in the document) and provide an efficient way for instructors to allow the student to remain registered or remove the student from the course.

Opt Out: All students can enroll in the course; no prerequisite checking will be done.

FACULTY AND STUDENT COMMUNICATION/MESSAGING TOOL

“The automated tool should create a registration system that is clear and transparent for the student and faculty member. Furthermore, the system should be designed to quickly and efficiently allow the instructor in charge to make a determination and communicate results automatically. At the time of registration, students should receive a notification that they are attempting to enroll in course in which they have not fulfilled the prerequisite.”

In the Strict Opt In and Opt Out options the registration message to the student is fairly straightforward: “Not enrolled: prerequisite not met” or “Enrolled”.

Messaging for the Opt in with Exceptions will require a robust communication tool that is initiated when the student has not met the prerequisite by the system checking mechanisms:

- The message should include the required prerequisite so the student is aware of what the prerequisite is.
- The system would then ask the student if they think they have satisfied this prerequisite and would like to send a request to the instructor for evaluation and decision.
 - If no, the student would not be registered in the course, no further messaging required
 - If yes, the student would be prompted to prepare a message indicating how the prerequisite has been met and perhaps they could upload a transcript copy or other document proving their point. Student would be allowed to remain registered in the course for a specified time period while waiting for a final decision from the instructor.
 - Instructor would receive an email containing a URL which would take the instructor to a webpage that contains a list of all students for that course that have sent prerequisite messages. Instructor could open attachments, indicate “allow” or “do not allow” registration or send back a message to the student. Instructors could monitor their lists daily without prompting from an email should they wish to do so.

Notes:

1. The system would allow future registration when there is a current enrollment in a prerequisite course and there will be a later check after End of Term processing to verify a passing grade in that course. (Similar to what happens currently for duplicate credit registrations.) In these situations if the student does not meet the required grade they would be dropped from the course or the instructor could allow an override. At initial enrollment these students would also be added to the webpage review report (same list as above) with a message identifying them in some way so instructors know about their conditional enrollment.
2. Transfer credit is an important part of prerequisite checking. For new students, freshmen or transfers entering in the fall, California Community College (CCC) transfer credit evaluation may not be in the system until late in the registration cycle. We will investigate allowing registration, then using a sweep to identify students who do not meet prerequisites by a determined date later in the registration cycle.

REMINDER: transfer credit evaluation for CCC will be systematically processed. ALL other transfer work does not currently have a quality articulation process, it requires independent review (faculty must review courses to determine equivalency and for all courses except CCC courses this is done individually as requested). These are the courses for which students will most likely request exceptions.

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If faculty supports the idea, we will investigate storage of transferred course information that instructors have approved to satisfy prerequisites. This information could be used for future reference by other instructors or staff when trying to determine articulation of transfer credit. Creation of a transfer credit evaluation process and system are not in the scope of this project, but would benefit prerequisite checking and many other processes that look at course information.

3. Prerequisites are rule based; i.e. C- or better in BIS 001. Restrictions are NOT prerequisites. Restrictions are added and maintained in the scheduling software. Common restrictions: upper division standing, lower division standing, consent of instructor, majors only, specific level standing (Freshmen, Sophomore, Junior or Senior), etc.
4. Recommendations are NOT prerequisites and will not be enforced as prerequisites.
5. P grades will assume a grade of C- or better when enforcing prerequisites for undergraduate courses and S will assume a grade of B- or better when enforcing prerequisites for graduate level courses. NP or U will be equated to "failed" for the purpose of prerequisite checking only.
6. AP scores and IB credit also allow specific course credit which can be translated into satisfaction of course prerequisites. There is currently no process by which these articulations could be stored and assessable for this project. Building these functions into the prerequisite checking system would have to occur in Phase 2. Placement exam information might also need to be considered for how it impacts course registration as a prerequisite but this will be future work and not within the scope of this current project.

CAMPUS TRAINING AND COMMUNICATION

Project Leader: Barbara Noble, Senior Associate Registrar

“Students and faculty members should be given ample notice about the creation of a system which enforces prerequisites at the time of registration and about the process for appealing and granting exceptions, as described above. All of this information should be clearly presented and explained in the catalog and on appropriate websites.”

OUR understands very well the need to notify, train and advertise registration changes to the entire campus. We have several campus partners that will help us in getting this information out. Below are some of the ways in which we will assure campus has proper notification:

- ❖ Articles in Cal Aggie
- ❖ Email notifications to students, advisors, and other campus constituents
- ❖ Work with Gina Anderson to assure that faculty are properly aware and trained
- ❖ Develop web pages that explain process to both faculty and students
- ❖ Include as agenda items in campus meeting organized by OUR
- ❖ Provide phone and email contacts for questions
- ❖ Provide training sessions as needed
- ❖ Create strategically placed messaging within the registration system to alert students to these changes
- ❖ Work with the MyUCDavis portal director to use portal resources to educate students
- ❖ Catalog pages will be edited where appropriate

TIMELINES AND PROJECT AT A GLANCE

PROJECT TIMELINE

October 2014–December 2014: Submit the written response to the Academic Senate Chair and attend any Senate meetings wishing to include OUR for clarification, discussion and dialogue on this project

October 2014–March 2015: Existing ICMS prerequisite rules entered into Banner

January 2015–February 2015: OUR must receive Senate direction and approval for development of phase 1 of the prerequisite checking project

February 2015–March 2015: Working with departments to cleanup and clarify interpretations

March 2015–April 2015: Testing results to verify outcome of the rules entered into Banner using reports for departments to check.

February 2015–November 2015: Development and testing

- Schedule Builder interface for students
- Communication tools for instructors and students
- Student/Instructor messaging (instructions, error messages, etc.)
- Instructor website for managing messages, evaluations and registration decisions
- Technology for sweeping students with unmet/unapproved prereqs from the course

November 2015–December 2015: Pilot group tests system for Winter 2016

January 2016: Marketing and training

February 2016: Full implementation for Spring 2016 registration cycle

SCOPE OF PROJECT AT A GLANCE (PHASE I)

- Rule Collection and Encoding
 - Compile Prerequisite Rules from Catalog/ICMS
 - Enter them into Banner
 - Develop web tool for departments to validate prerequisite rules (soft roll out for validation only; no prerequisite enforcement)
 - Departments correct rules if needed
 - Work with Academic Senate in creating workflow in ICMS for prerequisite only changes
- Prerequisite Enforcement
 - Modify Banner to allow for "opt in" features at the CRN level
 - Develop faculty and student communication/messaging tool
 - Develop "sweeping" system (similar to duplicate credit) that drops students after a certain point in the registration cycle if prerequisite requirements not submitted on time.
- Campus Training and Communication
 - Articles in Cal Aggie
 - Email notifications to students, advisors, and other campus constituents
 - Work with Gina Anderson to assure that faculty are properly aware and trained
 - Develop web pages that explain process to both faculty and students
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FUTURE PROJECT NEEDS

Future Project Needs

- ❖ AP, IB and Placement Test data collected and stored in such a way that it can be used in the Prerequisite Checking system
- ❖ Transfer credit evaluation, articulation and data storage processes for non CCC work must be developed in such a way to create ultimate efficiencies for all campus partners. Development of such a database will improve our prerequisite checking capabilities, credit limitation checking, repeat credit checking, and degree audit capabilities that the campus administration desire for faculty/staff advisors and students.

APPENDIX: LETTER FROM ACADEMIC SENATE

UC DAVIS: ACADEMIC SENATE

May 1, 2014

ELIAS LOPEZ, REGISTRAR
Office of the University Registrar

RE: Prerequisite Management

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UNIVERSITY OF CALIFORNIA – (Letterhead for Interdepartmental use)

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Prerequisite Enforcement
May 1, 2014
Page two

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Sincerely,



Bruno Nachtergaele, Chair
Davis Division of the Academic Senate
Professor: Mathematics

- c: Committee on Courses of Instruction Chair Potter
Committee on Elections Rules and Jurisdiction Chair Rocke
Undergraduate Council Chair Traxler