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ABSTRACT

Appropriate course enrollment maximums are an essential aspect of guaranteeing the quality of instructional programs. Colleges must consider many factors in establishing these enrollment limits, including legal codes, student and instructor safety, instructor workload, and the fiscal viability of the institution. However, the primary basis of any determination regarding enrollment maximums should be the pedagogical factors that influence the success of the students in the course. Many different college constituencies have roles to play in establishing appropriate enrollment limits, including discipline faculty, curriculum committees, academic senates, bargaining units, and administration. This paper outlines the proper roles for each of these constituencies and offers suggestions for establishing clear processes through which decisions regarding enrollment maximums may be made.

I. Introduction

LEARNING OCCURS IN MANY PLACES ON a college campus but is most commonly initiated and facilitated in one place more than any other: the classroom, where teachers and students interact as instruction takes place. Even if the classroom is virtual, the learning environment begins when relationships among all participants begin to form. For this reason, student achievement and success often hinge on the appropriate ratio of students to teacher (National Council of Teachers of English {NCTE}, 1999). While a low ratio may be considered ideal in many disciplines, in most cases the realities of public education prohibit such idealized instruction, so instead colleges must seek to determine the most effective and efficient ratio given these constraints. This paper examines factors that contribute to the determination of the ratio, the competing interests in setting it, and the appropriate roles of various college constituencies in reaching decisions regarding enrollment maximums.

Other industries and professions also deal with establishing the most effective ratio for optimal service. For example, nurses have a ratio established for patient health, doctors and dentists often say that they are no longer accepting new patients, and child care providers may be licensed to care for a certain number of children. All of these service providers may wish to push the ratio higher because they love patients or children, want to increase revenue, or because they want to deliver their messages of health and well-being to more individuals. However, in all cases, the ratios have been established for the well-being of both the care recipients and in some cases the care givers, and society supports such limitations for both selfish and collective gain. Faculty are no different in that the most effective ratio for students to teacher must be established based on the well-being of the recipient – the student – and there will always be economic, altruistic, or other reasons to consider increasing or decreasing the ratio.

From the faculty perspective, there are many significant reasons to establish and maintain the ideal size for a class. Many of these reasons involve the amount of time and attention that a faculty member can and should dedicate to each individual student in order to facilitate the most effective learning. Instructors need to know their students and guide the experiences that an individual student has in the class. In practical terms, the number of ten-page research papers that can be graded with care and with useful feedback during a term is limited, as is the number of speeches or student research projects that can be presented during class time, for example. Additionally, if students are required to participate in class discussions or small group work for part of their grade, then faculty must find a way to allow all students to contribute regularly and effectively. Through participation students contribute to their own learning as well as that of their peers, and thus students need these interactions to complement their own learning as well as contribute to the synergy in the class. The size of the class affects this learning environment, and therefore establishing the optimum ratio of students to teacher is essential to the success of the students as well as the teacher. Many professional organizations, educators, state governments, and others have recognized the value added to student success when there is a lower student to teacher ratio, as can be seen through the recommendations of the National Council of English Teachers and the American Mathematical Association for Two-Year Colleges, the review of the literature in Basic Skills as a Foundation for Student Success in California Community Colleges (2007), and several studies in the United States and abroad regarding lower class sizes in K-12.

In spite of the many clear benefits of limiting class sizes to established maximums that are based on pedagogical factors, various influences may encourage both faculty and administration to increase the number of students

enrolled in a course beyond their ideal limits. California community colleges are funded based on student time in real or virtual seats in courses: the greater the enrollment, the greater the reported full-time equivalent students (FTES), which usually results in greater funding at the local level. Because of this funding method, colleges are sometimes motivated to find ways to increase the number of seats available in a class and subsequently fill them. Faculty may also be tempted to enroll more students in a course due to the simple desire to serve and educate more students, especially when the number of section offerings for a high-demand course is limited due to lack of facilities or for economic reasons. In both cases, enrollment productivity is enhanced as the ratio of students to teacher increases.

Additional factors, such as physical space or other logistic and legal limitations, can influence the maximum number of students that should be allowed to enroll in a class. Union leaders and administrators may also have valid reasons for requesting adjustment of course enrollment maximums either upward or downward. However, these factors should not carry the primary weight in making decisions about learning. Instead, decisions regarding how large or small a class should be must begin with considering the factors that create the best environment for student learning from an instructional standpoint. In the end, the goal is to find the right balance between maximizing learning opportunities for students and assuring program and college viability. While these two perspectives are not always in conflict, when they do conflict finding the right ratio should be based first on the pedagogical factors that facilitate student success.

The Academic Senate has several resolutions, articles, and other publications reminding faculty, and especially curriculum committees, of the importance of establishing a reasonable enrollment limit for each section of any course approved by the curriculum committee¹. The Senate recommends that faculty-determined enrollment maximums for each course should be documented in the Course Outline of Record (COR) or other official addenda. How that course enrollment maximum is set should originate with the discipline faculty teaching the course, it should be set based on the COR and other relevant pedagogical factors, and the recommendation by discipline faculty should be confirmed by the curriculum committee acting as the agent for the local academic senate. While faculty must adhere to legal mandates and address all relevant safety issues in determining maximum class size recommendations, pedagogical factors should remain at the forefront of decisions on enrollment limitations.

Due to the complexities involved in reaching such decisions, the Academic Senate passed resolution 13.09 in Fall 2009, calling for a paper with guidelines and information for curriculum committees when setting course enrollment maximums:

Whereas, Class caps are maximum student enrollment limits specified for each class, and class cap determinations have sometimes been made inconsistently on the basis of classroom size and other arbitrary factors;

Whereas, The enrollment management plans on many campuses have been responding to FTES enrollment funding caps by arbitrarily increasing class caps in order to increase perceived efficiency;

¹ See, for example, the publication Survey of Effective Practices in Basic Skills (2003), the Rostrum article "Pedagogical-and Other-Approaches to Authenticate Student Identity" (December 2008), and resolution F 01 2.04 (Class Size in Distance Education Courses). Numerous additional resources on this topic may be found by searching for "class size" at asccc.org.

Whereas, Non-pedagogically based class caps have a serious impact on effective instructional delivery and student success, and raising class caps in many classes such as Career Technical Education and science laboratory classes not only impacts effective instruction but can also negatively impact safety conditions for students; and

Whereas, A number of professional organizations such as the American Chemical Society, Red Cross, Basic Skills Initiative, and the National Council of Teachers of English have conducted studies justifying the establishment of class caps based on pedagogical concerns;

Resolved, That the Academic Senate for California Community Colleges recommend that discipline faculty at local colleges determine class caps for each of their courses based on pedagogical and health and safety factors, such as but not limited to the methods of instruction, course modality, objectives and outcomes of the course, the assessment methods as established on the Course Outline of Record (COR), and fire codes; and

Resolved, That the Academic Senate for California Community Colleges develop a position paper with guidelines for local academic senates to work jointly with collective bargaining agents to assist discipline faculty in the determination of class caps based primarily on pedagogical and health and safety factors.

In response to the resolution, this paper will present factors to consider and rationale for placing a maximum enrollment on courses that is optimal for both students and the college and offer guiding principles to local senates for establishing class enrollment maximums.

II. AN OVERVIEW OF PROCESS

PROCESSES FOR ESTABLISHING CLASS ENROLLMENT MAXIMUMS may take many forms at different colleges, as the specific process is a local decision. The comments and advice in this section therefore simply offer a general, suggested model for colleges to consider. Curriculum committees should determine their own processes, including any required information, forms, requirements, and timelines.

The discussion involved in determining or changing class enrollment maximums should begin at the level of discipline faculty. With an existing course, an issue may arise in the college or the curriculum committee and be referred to the specific discipline, or the discipline faculty themselves may be interested in seeking a change to the enrollment limit. For new courses, if the course proposal is initiated by the discipline or department in which it is to be taught, that proposal may include a suggestion for an enrollment maximum based on local research, recommendations from external bodies, or other data. In either case, the discipline faculty will know best the pedagogical demands of the course and should be authorized to develop the starting point for the enrollment limit discussion.

However, while the actual development of the proposed enrollment maximum may originate with the discipline faculty, the process by which that proposal is developed and submitted should be established by the local curriculum committee. Such a process should include the creation of all necessary paperwork and forms, determination of required data or documentation to be included with the proposal, timelines for submission of changes to enrollment maximums, and the further steps through which the proposal must pass after development by discipline faculty but before final approval, including administrative review and, if necessary, collaboration with the bargaining unit. Appendices A and B of this paper offer examples of local processes currently in place within California community colleges.

The curriculum committee should also be certain to review carefully all course proposals from discipline faculty to ensure that all appropriate factors have been included in making the decision and that all relevant data have been considered and documented.

If administrators have voting positions on the local curriculum committee, then this may be the level at which administrative input is included. If the curriculum committee is exclusively a faculty body, then the process should include another mechanism through which administration can take part in the discussion, such as an enrollment management committee. While the primary factors in setting class enrollment maximums should be rooted in pedagogy and student success, administrators must ensure that curriculum committees consider the economic realities faced by the college at any given point in time, and thus their input is vital in establishing such limits.

In most community college districts, class size is considered a workload issue and is therefore included in the local bargaining agreement. In such cases, once the most appropriate class enrollment maximum is determined through consultation between discipline faculty, the curriculum committee, and the administration, the curriculum committee must communicate the decision to the bargaining unit and ask that it be properly negotiated into the contract.

III. ROLES AND GUIDING PRINCIPLES FOR DISCIPLINE FACULTY

PROCESSES FOR DETERMINING COURSE ENROLLMENT MAXIMUMS should always include significant input from the faculty in the discipline in which the course will be taught, as discipline faculty know best the demands and requirements of their own courses. Any recommendations made by discipline faculty must move forward through established college structures, allowing for appropriate input from administrators and bargaining units and approval by the curriculum committee and oversight by the academic senate. However, because the faculty who teach the course in question will have the most complete understanding of the relevant pedagogical factors involved in teaching the course, the discipline level is perhaps the most logical starting point for a process of determining course limits.

A. The course enrollment limit should not exceed the greatest number of students to whom the instructor can reasonably offer the attention necessary for their success.

Effective teaching and learning take place in a class environment in which the teacher has time to work with individuals to assist in their learning or to monitor the work of students who are learning collaboratively in groups. Both of these scenarios require that the number of students be a manageable one. Large lecture classes at universities may be led by a single faculty member, but they are generally taught and monitored by a team of graduate students who work directly with the students in smaller groups. In the community college, the faculty member has no such support team and must therefore be able personally to give adequate attention to each student. Students also need to receive timely and constructive feedback on assignments in as many ways as possible, both in person and in writing. In order to give students the timely guidance and support they need to successfully achieve the course objectives, the teacher must dedicate focused effort and time to each of them so that he or she can assess the strengths and weaknesses of each student and provide individualized assistance in order to help the students learn and improve.

The composition of most community college classes includes students with a wide range of abilities, backgrounds, interests, and goals, resulting in classes that are more heterogeneous than homogeneous in nature. Today's students enter classes with a rich variety of cultural and educational backgrounds as well as a plethora of personal obstacles and circumstances: severe under-preparedness, veterans, learning disabled, second language learners, first generation college students, different ages and ethnicities, students who work more than 30 hours per week, parents, minors, and more. Some of these students bring unique challenges that require additional attention and time from faculty, and class sizes need to reflect the competing demands on the expertise and experience of faculty who are dedicated to student success. When attempting to support the learning of many students with varying levels of preparation and motivation, a teacher often cannot spend enough quality time with those students confident and persistent enough to request help, let alone take the time and effort necessary to reach out to those students who need assistance but who have failed to seek it. With increasing numbers of students in need of assistance regarding even the most basic skills necessary to succeed in collegiate work, colleges must wrestle with the reality of giving more students access to a teacher while ensuring the quality of that access. Excessively large class sizes can stretch faculty resources and time, causing many faculty to rely on abbreviated means of grading and spending fewer minutes per assignment per student than is effective or desirable, resulting in a less than favorable learning experience for the students.

B. The number of students in the class should be appropriate to the method of presentation used in the class (lecture, lab, online, etc.).

The manner or medium through which a class is presented should be considered when establishing the class enrollment maximum. This consideration might take many forms in various contexts: legitimate factors in determining the appropriate class size include not only the class format and instructional techniques but also issues such as the expectations placed on the students and the environment in which the instruction takes place.

Lecture courses are designed with the expectation that 2/3 of the learning time is spent self-learning outside of class, with the remaining 1/3 spent on instructor to student interaction time in class. For lab classes, this ratio is generally at least reversed and often all of the learning is expected to take place in the time allotted for contact

between the instructor and the students. The different proportion of in-class time for a lab course creates different demands and expectations for an instructor: the entirety of lab time typically involves direct, individualized student contact, and therefore enrollment numbers must allow the instructor sufficient opportunity to give each student the attention assumed within this course format. Furthermore, although the students are not expected to spend time completing work outside of class, faculty may still spend significant additional time evaluating the work done during the class period. Lab courses often also require students to work with substances or equipment that can present dangers if it is not used properly, thus necessitating a higher level of direct faculty supervision in such environments. Discipline faculty must determine the most reasonable number of students an instructor will be able to serve according to the demands of the course, whether through in-person contact or evaluation outside of class.

Many career technical education (CTE), physical activity, and performance courses carry demands similar to those of lab courses. In these types of classes, students need time on task to develop a given skill, and filling the class with too many students impedes the ability for students to gain that time on task under necessary guidance. Some areas, such as laboratories, the swimming pool, ballet barre, or culinary arts classrooms, have a limited number of student spaces for successful completion of coursework. As with lab environments, some CTE courses require students to work with equipment or machinery that can present serious safety hazards if misused. Classes involving physical activity such as dance and athletics likewise require a greater level of supervision for safety reasons, as faculty must assure that students are performing the activities in a safe manner at all times and must be immediately available should any accident occur. Any time more students are added to such classes, the level of supervision and available time for instruction of any one student is reduced in an activity, lab, or CTE course.

Certain course formats may also raise most serious issues in terms of classroom management. In activity classes involving physical contact among students, disruptions or conflicts among the students may be more likely to arise. Courses involving the use of potentially dangerous materials or equipment may also present additional risks should disruptions arise. The larger the class is, the less able the instructor may be to remain aware of potential conflicts and to anticipate and manage such disruptions. Faculty do a disservice to students, their college, and their community when they over-enroll classes that involve such risk factors.

Distance education courses present a unique set of issues in terms of determining appropriate class sizes. When online delivery was first adopted, many faculty and administrators thought it would be the ultimate solution to enhancing productivity because in absence of any physical space limitations, class sizes could theoretically be almost unlimited. As faculty have gained more experience with online teaching, and as they are required to maintain regular effective contact with each and every student, they have come to realize that a significant negative correlation seems to exist between increased class size and student learning. Certainly considerable evidence suggests that just like in face-to-face classes, student success in online classes is greatly dependent on regular, effective interaction between students and teachers as required in Title 5 §55208.

Methods of instruction, evaluation, and interaction can differ widely among distance education courses just as they can in face-to-face courses. Discipline faculty often determine that rigorous written student assignments each week are pedagogically appropriate, or they may choose to require frequent and substantive participation in discussion forums. These activities may serve as methods not only to foster student engagement but also as a means of formative assessment, and they typically demand substantial time and effort on the part of the instructor, in part because the distance education modality can require greater amounts of one on one interaction to ensure regular effective contact is maintained. For example, in face-to-face classes simple facial expressions or body language can tell the instructor much about how the learning is progressing for the students. In the online environment, such non-verbal cues are generally absent, and assessing student comprehension through written communications can require more time of both the students and the instructor, particularly when the students are inexperienced with the distance education modality. The teacher-student contact must be effective in order to achieve the course goals, so the instructor may have to do more to ensure that it is effective for each student. This particular aspect of distance learning would validate the need for a lower student to teacher ratio. Conversely, faculty in another discipline may determine that less frequent written work or lesser levels of discussion participation are necessary while still maintaining student learning and engagement, and as a result these faculty members may believe they can reasonably accept more students in the course and still successfully help students meet the learning outcomes. Given all of these variables, discipline faculty should collaborate to determine the most appropriate methods of instruction, evaluation, and interaction and document these methods in the official COR. Such factors should be taken into careful consideration when setting an enrollment maximum.

C. The number of students enrolled in the class should be conducive to the use of a variety of effective grading processes (take-home writing assignments, essay exams, scantrons, presentations, etc.)

Different classes are not only conducted differently but also feature a variety of types of assignments that are deemed appropriate or necessary to meet the learning objectives of the course. A number of factors involving the specific assignments for a class can impact the workload for the instructor and therefore the amount of attention that can be given to each student.

Written assignments, if evaluated carefully and in detail, can require a significant amount of time and effort on the part of the faculty members. Reading and providing thoughtful feedback on student writing may present an unreasonable challenge if a class is too large or has been overenrolled. A course with longer, more numerous, and more complex written assignments, both in and out of class, may appropriately be assigned a lower enrollment maximum in order that students may receive sufficient guidance from the instructor. Such expectations must of course be consistent across all sections of the course and should be specified in the COR.

In addition to the time and effort involved in evaluating student work, faculty must also be certain that the work is authentic and original. Academic honesty may therefore be another relevant aspect of determining appropriate class sizes. To best facilitate academic honesty, the teacher must have a manageable class size. Even the most diligent, attentive teachers have a challenge in monitoring students during an exam when an excessive number of individuals must share the instructional space, particularly if the space is as complex as many lab environments or as expansive as large lecture halls. In order to address potential problems with cheating and plagiarism, class caps must be set in a way that gives the teacher the ability to successfully monitor student work and testing situations.

The types of assignments required during class time may also be a factor to consider in establishing enrollment caps. If a significant portion of the class involves individual students performing for the class as a whole, then a greater number of students enrolled will inhibit the students' ability to complete the expectations of the course and to effectively demonstrate their progress. For example, presentations such as those in a public speaking course require that individual time be provided for each student to perform. If the class is too large, students will not have sufficient opportunities to practice their skills and achieve the course outcomes, nor will the instructor have enough opportunities to authentically evaluate the students' work. In-class time management of the course may therefore be tied directly to course size in some cases and may impact the effectiveness of the instruction.

D. Decisions on the setting of class enrollment maximums should, wherever possible, be supported by current and reliable data, both locally produced and from external statewide and national organizations.

While theoretical or idealistic reasons for setting course enrollment maximums will resonate well with faculty from an altruistic perspective, decisions based on more objective, yet clearly pedagogical, factors in identifying the appropriate enrollment limit will be more defensible and will help colleges to ensure that they remain productive and fiscally responsible while still ensuring student success.

Standards published by national organizations have helped faculty in the basic skills disciplines of mathematics and English to contractually establish appropriate course maximums. The National Council of Teachers of English (NCTE) recommends a class size of 20 for collegiate English courses and 15 for basic skills courses (NCTE, 1999). The American Mathematics Association of Two Year Colleges (AMATYC) recommends a ratio of 30 students for one teacher (American Mathematical Association of Two-Year Colleges, 1993). While few community colleges have enrollment limits set this low, discipline faculty may be able to reference these recommendations to achieve a manageable ratio for maximized learning.

Many CTE courses and programs, such as nursing, have external demands from separate accreditations or advisory boards that must inform their course sizes. While compliance with accrediting and licensure requirements may ultimately be a responsibility of the curriculum committee and the administration, discipline faculty should also be conscious of such requirements and may need to help inform the curriculum committee of the limitations placed on their specific disciplines by external organizations. Discipline faculty may also need to communicate with the bargaining unit so that appropriate course enrollment maximums can be negotiated and included in the contract if such contract language is deemed necessary in light of the requirements posed by external bodies.

Faculty should also consider locally compiled data in determining appropriate class sizes. For example, local data on student success and student learning outcomes assessment may be useful in determining which classes require more individualized attention for students in order to help them succeed. College researchers may be able to help discipline faculty analyze various types of data on which decisions regarding enrollment caps can be based.

IV. ROLES AND GUIDING PRINCIPLES FOR CURRICULUM COMMITTEES

ONCE DISCIPLINE FACULTY HAVE DETERMINED THEIR recommendations regarding the appropriate enrollment limits for their courses, those recommendations should be forwarded to the local curriculum committee. The curriculum committee's role as an institution-wide representative body is to take a broader, more process-oriented view of the issue, ensuring that all relevant factors have been considered and that the needs of the institution as a whole are being met in ways that ensure academic quality and that are both fair and efficient.

A. Curriculum committees must ensure that discipline faculty have appropriately considered all relevant factors in establishing the class enrollment maximum.

The Curriculum committee should review the discussions and conclusions of the discipline faculty to ensure that all relevant factors and issues have been considered. Those factors may include the method of course delivery, methods of evaluation, and others outlined in the principles set forth for discipline faculty in section three of this paper. Discipline faculty should be afforded the opportunity to explain or defend their conclusions, and the curriculum committee must make certain that the discussion by the discipline faculty has been comprehensive and conscientious.

B. Curriculum committees should review the data upon which the recommendations of discipline faculty are based to ensure that the data are appropriate and have been given proper consideration.

In evaluating the recommendations of the discipline faculty, curriculum committees should review the data upon which those recommendations are based. College research staff may assist the committee in analyzing the data to ensure that the data has been interpreted thoughtfully and accurately. This process should not imply that the expertise of the discipline faculty is being second-guessed by the curriculum committee in terms of the faculty's pedagogical approach or assessment of student needs within the discipline. Rather, the committee is performing a quality check to ensure that the discipline faculty have considered the data purposefully and effectively and used the data to support the conclusions they have reached.

C. Special population classes (such as those for honors programs) may have valid claims to smaller class sizes.

Some courses in the curriculum of every college are designed for specific populations, and in some cases the design and demands of such courses may justify a lower enrollment cap. In honors program courses, for example, a part of the higher-level student experience is based on the assumption that there will be more extensive interaction with both the instructor and the other students, more opportunities for participation and in some cases more writing or other coursework that must be evaluated by the instructor; for these reasons, a smaller class size may be necessary to allow for this enhanced interaction and instruction. Similar justifications regarding a need for greater student interaction and attention may exist for various other special population classes.

D. Determinations of enrollment maximums for different disciplines and courses should be rooted in balanced and fair considerations of workload for different disciplines, including factors such methods of evaluation (essays vs. tests), delivery methods (lecture vs. lab), etc.

Like discipline faculty, curriculum committees should consider numerous factors in determining appropriate enrollment maximums, including method of delivery, methods of evaluation, and others. However, the curriculum committee must also look at the broader picture and consider the impact of its decisions on the overall curriculum of the college. Class sizes impact the workload of faculty and staff, and thus if some disciplines seem to be granted smaller classes without clear justification, conflicts may arise among faculty members. For this reason as well as for the good of the students, a balance of all relevant factors and a commitment to fairness are essential components of curriculum committee decisions regarding class enrollment limits.

In order to maintain a sense of balance and fairness, the curriculum committee should establish a well-defined set of parameters or criteria for determining when student needs justify a smaller class size. Such criteria may involve many of the issues raised in this paper as well as factors based on local needs and culture. Appendix C of this paper offers an example of the sort of checklist that might be used, but this checklist is offered simply as a suggested model, and each curriculum committee may wish to design its own process and criteria. Once the process and the parameters have been established, the curriculum committee can then evaluate all requests for lower enrollment maximums according to that established standard, thus allowing the committee to justify its decisions in clearly defined terms.

Distance education is a specific area that sometimes raises an issue of perceived inequity among faculty. Since the same COR applies regardless of whether the course is delivered online or face-to-face, many faculty assert that class size should remain the same no matter what delivery method is used. In contrast, other faculty contend that the different obligations and time demands involved in distance education merit special consideration in terms of class size. Add to this the fact that some administrators and even some faculty have seen the absence of physical space limitations in online courses as an avenue to accommodate more students, and the issues regarding distance education can become particularly controversial. Faculty and administrators must therefore come to an agreement regarding whether or not online courses will have different caps than those for face-to-face courses and must develop documented policy congruent with this agreement.

E. While pedagogical factors and student success should be the basis for establishing class caps, student safety and compliance with legal codes must always be ensured.

Although the first issues raised in most discussions of class size will involve the integrity of the instruction and student success, curriculum committees must also observe the twin considerations of complying with all legal codes and mandates and guaranteeing the safety of the students in their learning environment. Indeed, these concerns often go together: a college must observe fire codes and avoid overfilling rooms for legal reasons, but the intent behind the code is to ensure safety in the learning environment. While discipline faculty should consider these factors in making the initial recommendation regarding the course enrollment maximum, the curriculum committee's broader oversight role requires that it review the discipline faculty's determination to ensure that all legal and safety requirements have been met.

Monitoring and including legal and safety factors should be an ongoing process. Advisory groups may modify requirements, and facilities may be built or redesigned. For these reasons, each time the COR is reviewed, the course maximum should also be reviewed in order to ensure all necessary compliance and safety issues are addressed while still maintaining the best possible environment for student learning.

F. Course enrollment maximums should be published in the Course Outline of Record or in some other official location which faculty can monitor.

Once course enrollment maximums are established, they should be published in a way that makes them accessible to all relevant parties and able to be monitored by the curriculum committee. The COR is perhaps the most logical location for such publication, as the COR and the instructional and evaluative methods listed therein should be the primary basis for establishing the enrollment cap. However, some local curriculum committees may decide on a different location for publishing the course enrollment maximums, and this is certainly a local prerogative. What matters is that the information is collected and preserved in a location and manner that is accessible to all and that cannot be altered without the curriculum committee's knowledge and approval.

V. Roles and Guiding Principles for Academic Senates

THE ACADEMIC SENATE HAS PRIMARY RESPONSIBILITY for making recommendations regarding curricular matters under both Education Code and Title 5. Academic senates delegate varying degrees of responsibility for curricular decisions to their local curriculum committees, but in no case does the senate relinquish its responsibility to ensure both the integrity of curricular processes and respect for decisions that are made through such processes.

A. As the primary oversight body for curricular decisions and recommendations, the academic senate should ensure that clear and logical processes for the setting of course enrollment maximums are established.

California Education Code § 70902 (B) (7) grants to academic senates the "primary responsibility for making recommendations in the area of curriculum and academic standards." Because class size can clearly impact instruction, course enrollment maximums are a curricular and academic matter and thus fall under the purview of the academic senate.

However, most academic senates delegate a large portion of their curricular authority to the curriculum committee, which is defined in Title 5 § 55002 (a) (1) as a body "established by the mutual agreement of the college and/or district administration and the academic senate. The committee shall be either a committee of the academic senate or a committee that includes faculty and is otherwise comprised in a way that is mutually agreeable to the college and/or district administration and the academic senate." Because the curriculum committee is either a sub-committee of the academic senate or a committee with a composition to which the

senate has agreed, the senate does not abdicate its responsibility or authority for curriculum by delegating to such a body. Both Education Code and Title 5 § 53200 grant responsibility for curricular recommendations to academic senates, and thus the senate can maintain an oversight role even in those areas for which it delegates the authority to make decisions and recommendations to the curriculum committee.

In regard to setting course enrollment limits, most academic senates delegate the authority for specific decisions on individual courses to the curriculum committee. In such cases, the academic senate's role is one of oversight: the senate should ensure that the curriculum committee develops clear, reasonable processes for decisions regarding class enrollment limits and that those are outlined in written form. As the primary body that consults with the college administration and, as necessary, with the faculty bargaining unit, the academic senate should also ensure that the processes and criteria developed by the curriculum committee are published in college policy or in other appropriate documents in order to ensure that they will be preserved and officially recognized.

Finally, the academic senate may wish to create a process through which it serves as an appeals body for curriculum committee decisions and helps to resolve issues when discipline or program faculty are displeased with determinations regarding enrollment limits. While the senate has the authority to resolve such disputes, the degree to and manner in which it exercises this authority is a matter of local process and culture and of the local relationship between the academic senate and the curriculum committee.

B. Once processes and policies for setting class enrollment maximums are established, the academic senate is responsible for ensuring that these policies and processes are respected.

As the oversight body for curricular decisions, the academic senate should ensure that the policies and processes developed by the curriculum committee for setting course enrollment maximums are properly observed and respected. This oversight role may be applied in many ways. The senate may need to work with the college administration to be certain that enrollment maximums are being set according to policy and are not being exceeded. However, in some cases the senate may also need to remind the curriculum committee itself of the need to follow established processes and to apply policies and criteria fairly. In addition, if class sizes are in any way a contractual matter, the senate will need to work with the faculty bargaining unit to ensure that the contract and the curriculum policies are consistent and are properly observed. In all of these cases, the senate need not involve itself in determining the proper class size for any individual course, but rather should work to ensure that the work of the curriculum committee and all other groups involved in making such determinations is conducted conscientiously and according to local processes and is then respected in all applicable situations.

VI. ROLES AND GUIDING PRINCIPLES FOR BARGAINING UNITS

In many districts, course enrollment maximums are included in the collective bargaining agreement. Such an inclusion is logical, as class size certainly does impact faculty working conditions. In such cases, bargaining units should work with the curriculum committee and the academic senate to ensure that the primary consideration in determinations of enrollment maximums is the integrity of the instructional program.

A. Bargaining units should rely on input from the curriculum process and the academic senate to bargain course enrollment limits that are pedagogically sound.

The faculty bargaining agent may negotiate an enrollment maximum after receiving input and direction from discipline faculty and the curriculum committee. Once the discipline faculty and the curriculum committee have determined the appropriate class size, inclusion of the enrollment limits in contract language can offer faculty additional protection from over-enrolled classes. However, the determination of the appropriate enrollment limit should come first; the bargaining unit's role, while important, begins after the decision on class size has been reached based on pedagogical and safety factors.

Academic senates may also want to ask bargaining units to clarify within the contract the process for setting course enrollment maximums and the role of the curriculum committee. Such a practice might help to ensure that the enrollment maximums set by the curriculum committee are respected. However, some academic senates may feel that outlining the process in college policy is sufficient and even preferable, depending on how the respective roles of the academic senate and the bargaining unit are seen within the specific district. The decision to define these roles and processes in contract language is a matter of local preference.

B. Once class enrollment maximums are determined for curricular reasons, bargaining units should then ensure that faculty are properly compensated for their workloads.

The bargaining agent, always mindful of faculty workload, may have an algorithm or means of equating faculty workloads because of lecture or laboratory designations. Faculty in some disciplines where there are more laboratory courses teach more courses or sections in order to make a full-time load. If these courses are also the ones that typically have large enrollment maximums, then this group of faculty is challenged to manage more students and the academic and behavioral issues that go with the larger number of students than their colleagues. While discipline faculty and curriculum committees must base the recommendations for the class size on the COR and how the course is taught, the bargaining agent can assist with other reasons for setting a course maximum that is reasonably equitable across disciplines.

In addition, many faculty believe that their workload increases dramatically in an online environment because significant amounts of time may be needed to correctly apply the appropriate technology and develop new approaches to presenting content and assessing student learning in a fully online environment. Bargaining units should work with their local curriculum committees to determine the relationship between online and in-person workload and set clear criteria for any differences or allowances that they determine to be appropriate.

C. Contract language should both protect faculty rights and instructional quality regarding enrollment maximums and ensure that faculty act responsibly in observing those limits.

Including established enrollment maximums in the local bargaining agreement can help to ensure that those maximums are respected. Without proper protections, part-time and even tenure-track faculty may sometimes feel pressured to exceed class size limits in order to help the college reach enrollment targets. Whether this pressure is truly present or simply exists in the perception of faculty members who have less job security and are therefore eager to please, it can threaten instructional quality and student success by leading instructors to

overenroll classes. If the course enrollment maximums are clearly defined through the faculty contract, this information can help faculty to feel more secure in respecting the established class size limits.

Contract language is useful not only to protect faculty rights, but also to set appropriate standards according to which faculty perform their duties. In the area of course enrollment maximums, bargaining units can help to establish not only the limits to be applied to individual courses or types of courses, but also the process and degree to which faculty are allowed to grant exceptions to these limits. Clear guidelines regarding the faculty's right to exceed class enrollment maximums on an individual basis and the point at which overenrollment of courses may become inappropriate can both protect faculty from pressure to accept too many students and also ensure that faculty are acting responsibly in respecting class enrollment limits that have been established for pedagogical reasons and the benefit of the students.

Bargaining agents sometimes negotiate incentives for faculty to enroll a number of students over the course maximum; for example, a faculty member may receive additional pay for enrolling a course to 150% of capacity. Such practices should be considered very carefully before being included in the contract, as they can provoke conflict among faculty by allowing individual faculty members to make decisions about the number of students they are willing to have in class as compared to a colleague teaching the same course. In addition, if the course enrollment maximum is determined based on sound pedagogical factors, then overenrolling the course contradicts the reasoning through which the cap was originally set and is likely to negatively impact instruction. For these reasons, the practice of including contractual incentives for enrolling students beyond the established course maximum should at best be limited and exercised with great caution and according to strict guidelines. Bargaining agents should work with the local academic senate to ensure that all contract language regarding class enrollment maximums and exceptions to them protect both the interests of faculty and the integrity of the college curriculum.

VII. ROLES AND GUIDING PRINCIPLES FOR ADMINISTRATION

Administrators have much to contribute to the discussion of class enrollment maximums. Concerns about efficiency and optimal use of facilities will be part of the conversation, but the administration has a specific role in monitoring and enforcing class minimums and maximums. Administrators have a difficult but important job in assisting with establishing and enforcing class maximums, and for faculty, working with administrators rather than against them will benefit students and teachers.

A. Administration must work within the process for establishing course enrollment maximums to ensure the fiscal viability of all courses while still ensuring that academic quality is not diminished.

Because community colleges in California are funded based on enrollment, class sizes have a direct relationship to the economic health of the institution. While the primary basis for determining course enrollment maximums should involve pedagogical factors and instructional excellence, administrators must ensure that budgetary

realities are also considered. By working along with faculty, through either the curriculum committee or other appropriate college bodies, administrators can help to balance economic necessities with academic quality in order to ensure student success without compromising the institution's fiscal well-being.

B. Administration must work with discipline faculty and curriculum committees to ensure that any necessary spatial or physical accommodations for a course are observed when scheduling and that all safety factors and legal codes relevant to establishing course enrollment maximums are properly considered.

Administrators have a responsibility to understand the core elements of the COR for the classes they schedule and assign to faculty. Specifically, they need to work closely with the curriculum committee and discipline faculty to fully understand methods of presentation and evaluation as listed in the COR in order that they may properly determine the best spatial or physical environment for the class. For example, the size of classrooms can have an impact on student learning. Placing a small class in a large room can compromise the learning environment, while over-filling a small space with students can also negatively affect the experience that students have in the class. Many laboratories, whether for science courses or CTE programs, and physical activity areas such as pools or dance studios have a limited number of student spaces for successful completion of coursework. These physical limitations should be considered both when determining an enrollment maximum for a course and when assigning the course to a classroom after the maximum has been established. In many cases administrators make actual classroom assignments, and they may therefore have knowledge in the area of facilities use that can help to inform the discussion of enrollment limits. Dialogue between faculty and administrators is therefore necessary to analyze the interaction of instructional needs with the options or limitations of facilities in order to optimize available resources and allow for the most effective student learning.

In multi-college districts that have common curriculum, the logistics of class assignments and enrollment management can be especially difficult. If the facilities at the various colleges are different, then these differences should be considered in order to ensure that the district does not establish enrollment maximums that one or more colleges cannot accommodate. While enrollment limits should never be determined primarily based on the size of the classroom, the instructional space in which the instruction is offered can create logical limitations on the number of students who should be admitted to the course. Administrators are in the best position to know or investigate differences in facilities among institutions and to help ensure that established enrollment maximums are suitable for all colleges to which they apply.

All parties involved in setting course enrollment maximums must consider safety concerns and legal codes throughout the process. However, because administrators have a heightened responsibility to protect both the students from harm and the college from legal action, they must be especially diligent in ensuring compliance with all established codes and procedures. Administrators may have additional expertise or knowledge in such matters that should be considered by faculty in determining appropriate class sizes. As with the consideration of physical and scheduling realities, faculty and administration must engage in dialogue to ensure both legal compliance and student safety in all areas.

C. Administrators at all levels must make certain that all properly established class enrollment maximums are understood by all interested parties and respected by both administration and faculty.

Once appropriate course enrollment maximums are established by discipline faculty and the curriculum committee and, where appropriate, added to contract language, administrators must enforce the class maximums in those courses. Whether the maximum was set because of the fire code, the nature of the course, or other pedagogical factors, administrators must be able to explain the limitations to board members or members of the community if questions regarding enrollment limits arise. Administrators must also explain the enrollment maximums to other faculty members and students who may question or not understand the rationale behind any limitations. Such explanations require administrators to be familiar with the COR for the course in question and the process and reasoning through which the maximum was established.

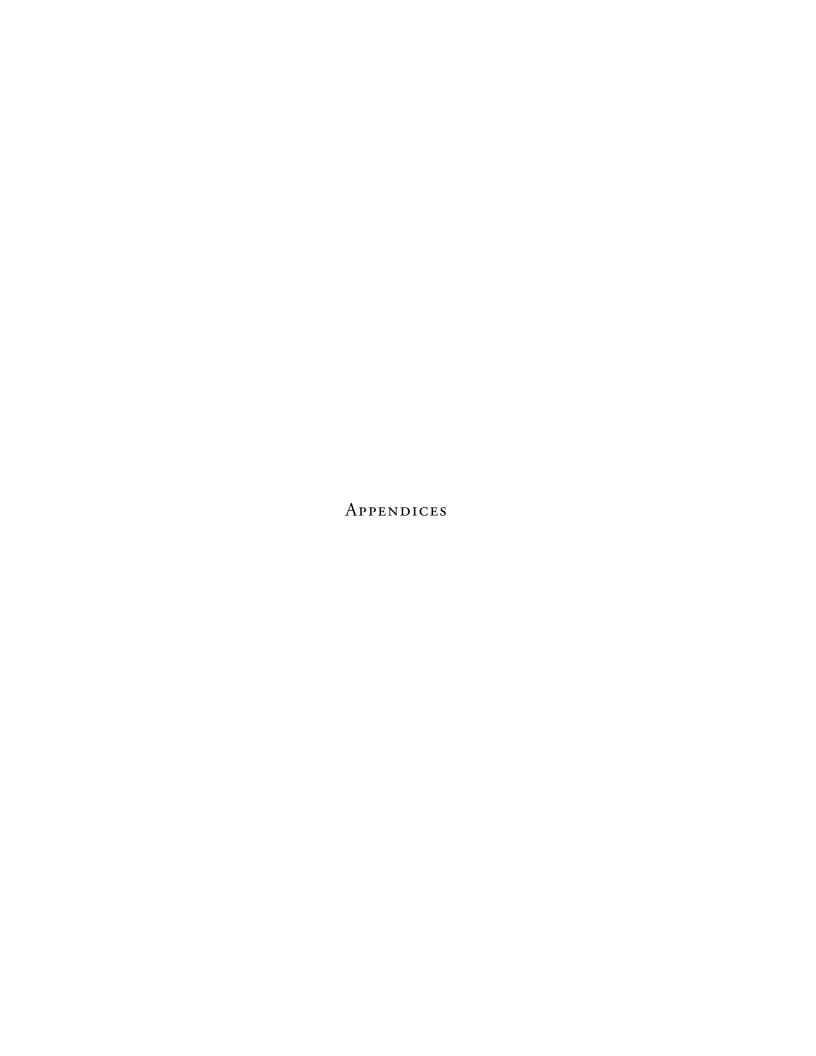
However, the administrative responsibility to ensure respect for enrollment limits goes beyond mere explanation; administration must also ensure that the established course maximums are properly adhered to. Such adherence means that administrators themselves must respect the enrollment limits and not allow classes to overenroll, but it also means that faculty who wish to excessively over-enroll for their individual classes should be reminded of the limits and held to reasonable standards. Administrators must therefore be very familiar with both college policy regarding enrollment maximums and any contract language regarding faculty discretion in this area in order to make certain that class sizes remain at appropriate levels in terms of both pedagogy and safety.

VIII. CONCLUSIONS

MANY FACTORS MAY CONTRIBUTE TO THE determination of an appropriate enrollment maximum for any given course. Relevant considerations in making such a decision include the teacher-student and studentstudent relationships in the class, the number and length of papers and other written work to grade, the amount of individual time that should be given to each student's work, the types of assignments, the expectation for students to regularly participate in class discussions, and other factors in how the class is taught. The primary reason, however, for setting any limitation on class size is to enhance the learning environment and experience for students. Administrators must ask for a reasonable class maximum so as to allow the college to be fiscally responsible. Bargaining units may have negotiated course maximums which are in the contract and the degree of freedom allowed to individual faculty in making exceptions to those maximums. Facilities and physical space available also contribute to decisions about the number of students to allow enrollment into a specific instance of a class. Distance education courses may place additional demands on faculty and therefore may require separate consideration regarding class size when courses are submitted to the curriculum committee. Each aspect of the course design and delivery plays a critical role in appropriately setting course maximums. Discipline faculty, curriculum committees, academic senates, bargaining units, and administration all have roles to play in determining and enforcing course enrollment maximums, and all must work together according to clearly established processes in order to ensure that the primary factor in all decisions about enrollment limits is the attainment of student success in the course.

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Appendix A: Course Enrollment Maximum Process Example from CUESTA COLLEGE

Policy for Establishing and Modifying Course Caps

Definitions

- 1. Course Caps are the maximums for student enrollment for all sections of a course as listed on the Course Outline of Record for each course.
- 2. Enrollment Maximums are the total number of students that can enroll in a section of a course due to campus site, classroom size, or modality. Fill rates for individual sections of a course are to be determined by the enrollment maximum for a course, not the course cap, because the course cap may be higher than the classroom size allows.

Principles for the Initial Establishment and for Modification of Course Caps

- 1. Course caps will be established initially by using the current enrollment maximums as reflected in Banner for each course. These enrollment maximums will become the official course caps for all courses and will be listed on the Course Outline of Record (COR) for each course. For courses that have different enrollment maximums, either by semester or based on physical limitations at a particular campus site, the greater enrollment maximum will be used for the initial establishment of the course cap.
- 2. Course caps, preexisting or revised, are the maximums for student enrollment for a given course across all campus sites. Where physical limitations at a particular campus site make accommodating an established course cap maximum impossible, a lower enrollment maximum may be used for that course for that location without modifying the maximum course cap that is listed on the COR for a given course across all campus sites and modalities.
- 3. Faculty members have the authority to submit a major course revision to the Curriculum Committee to modify the existing course cap based on the criteria outlined below with the consent of their fellow division faculty and with appropriate documentation.
- 4. If the Curriculum Committee approves a major course revision to modify a course cap, then the new course cap will become the official maximum for student enrollment for that course and will be listed as such on the Course Outline of Record (COR), effective the following semester after approval.

Process for Changing Existing Course Caps

1. Division faculty may submit a major course revision to the Curriculum Committee to modify an existing course cap based on established criteria as explained below, each of which must be supported and/or justified with appropriate documentation. One criterion is required, but two or more are recommended for justification of a Course Cap modification proposal to the Curriculum Committee.

- 2. Based on the criteria for the modification of course caps listed below, the appropriate documentation to support a proposal to change a course cap may include, but is not limited to, the following:
 - Comparative research of caps for similar courses at other California community colleges; A.
 - В. Recommendations or requirements from a professional or academic publication or organization; and/or
 - Course specific documentation, such as course syllabus, assignment criteria, SLOs, and objectives.
- Proposals to change the existing course cap for a course will be reviewed by the Class Caps Sub-committee of the Curriculum Committee. This sub-committee will review the proposal to determine whether or not the proposed change and supporting documentation are consistent with the established criteria for the modification of a course cap and make a recommendation to the Curriculum Committee as to whether the course cap should be modified. The Curriculum Committee will make the final decisions regarding the proposal to change the existing enrollment maximum for a course.

Criteria for the Modification of Course Caps

Modifications to a course cap must be justified with one of the below criteria, and it is recommended that two or more criteria be considered in a proposal to modify a course cap. Under each criterion below, suggested examples are provided of the types of data that may be used to justify a modification to a course cap. In addition, faculty members who propose a new course to the Curriculum Committee can opt to establish the course cap based on the course cap of a similar course(s) within the discipline or based on one or more of the below criteria:

- 1. Health and Safety-
 - Fire codes
 - Supervision: Number of students who can be safely supervised by available faculty and/or staff within a classroom when the students are undertaking hazardous activities or working with hazardous equipment.
- 2. Facility or Other Class Capacity Limitations
 - Availability of seats, desks, or workstations
 - Availability of equipment or supplies
 - Availability of required or necessary teaching or lab assistants
- 3. Course Modality
 - Lab courses vs. combined lecture and lab courses course caps may be determined differently for labs, which may have different limitations compared to lecture-only courses.
- 4. Instructional Delivery
 - Nature of classroom activities
 - Nature of interaction between instructor and students
 - Use of group work or group projects
- 5. Student Assessment
 - Types and/or amount of individual assignments, projects, and/or papers to assess
 - Methods of student assessment, feedback, or evaluation

- Course-level or Program-level Student Learning Outcomes
- Course objectives in the COR
- 6. Use of Existing Course Cap for a similar course(s) within the discipline
 - For new courses only—can not be used as one of the required criteria for modifying an existing course
 - New course should be comparable (i.e. objectives, topics and scope, assignment, assessment, and pedagogy) to other course(s) in the discipline

Appendix B: Course Enrollment Maximum Process Example from Mt. San Antonio College

MT. SAN ANTONIO COLLEGE

Procedures for Petitioning for Establishing/Amending Class Size

All requests for establishing or changing class size must be reviewed by the Class Size Committee. All forms described below are to be submitted through the Educational Design Committee after official review of courses. The Class Size Committee will review requests for:

- All new courses
- All amended courses with requests to change class size

Review of class size requests will be submitted to this Committee on either Form A or Form B as described in the Process for submission (below).

Process for submission:

- 1. If a class size is requested for a New Course Proposal that conforms to standard class size limits for comparable courses in the department/program, the request should be submitted to this committee on Form A (short form). This form will be made available by EDC and the division offices.
- 2. If a class size is requested that does not conform to standard class size for similar classes within the department (change of 5 or more seats below standard), the Educational Design Committee (EDC) will ask the faculty member to complete Form B, Petition for Establishing/Amending Class Size. This form will be made available by EDC and the division offices.
- 3. Both forms with required attachments are submitted to the Educational Design Committee. All forms considered by the Class Size Committee must go through the EDC and are not submitted directly to members of the Class Size Committee.
- 4. EDC forwards completed Forms A and B with required attachments to Class Size Committee.
- 5. Class Size Committee processes Petitions within ten working days (during the academic school year) of receipt.
- 6. Class Size Committee notifies EDC and the faculty member making the request of its decision.

Petition Process: Form B Completion

- Fill in all identifying information. For new classes, only the proposed class size is necessary; for amendments, please include both the current class size and the proposed size.
- Section II: Contact colleagues, department chairs, division secretaries, or the Office of Instruction at benchmark colleges for assistance in providing official documentation of class size. Please identify

name, title, and phone number of contact person at benchmark college if official documentation is not available.

If external accrediting organizations require a class size limit, benchmarking is optional, but documentation of external requirement must be attached instead.

Note: If there are relevant similarities to other Mt. SAC courses, list those courses under "other" and provide documentation of their class size.

Section III: Respond to all items that apply to your course as completely as possible.

Note: List any relevant information not already captured in application under "Other special considerations."

This application is limited to no more than two pages!

FORM A

MT. SAN ANTONIO COLLEGE PETITION FOR CLASS SIZE APPROVAL **NEW COURSE PROPOSALS**

(Class Size Consistent with Existing Class Limits)

Lecture Lab Proposed class size limit (maximum): Class size limits for 2-3 similar courses in the department: (1) Class Class Size Limit (2) Class Class Size Limit (3) Class Class Size Limit Submitted by Faculty Member Department	I. Cou	urse name and number		
Proposed class size limit (maximum): Class size limits for 2-3 similar courses in the department: (1) Class	Units	Hours per week clas	s meets	
Class size limits for 2-3 similar courses in the department: (1)			Lecture	Lab
Class Class Size Limit Department	Proposed cla	ass size limit (maximum):		
Class Class Size Limit Class Class Size Limit (3) Class Class Size Limit Submitted by Faculty Member Department	Class size lin	nits for 2-3 similar courses in the departs	ment:	
Class Class Size Limit Class Class Size Limit Class Class Size Limit Submitted by Faculty Member Department	(1)			
Class Class Size Limit (3) Class Class Size Limit Submitted by Faculty Member Department	Clas	ss Class Size Limit		
Class Class Size Limit Submitted by Faculty Member Department	(2)			
Class Class Size Limit Submitted by Faculty Member Department	Clas	ss Class Size Limit		
Submitted byFaculty Member Department	(3)			
Faculty Member Department	Clas	ss Class Size Limit		
·	Submitted b	у		
		Faculty Member	Department	
Campus extension Email address	Campus exte	ension Email ac	ldress	
Approved by: (Educ. Design Committee) Date	Approved by		(Educ. Desi	gn Committee)
(Class Size Committee) Date			(Class Size Committee)

Attach Course Outline

FORM B

MT. SAN ANTONIO COLLEGE

PETITION FOR ESTABLISHING / AMENDING CLASS SIZE

I. Course name an	d number				
Units	Hours per week cla	ss meets			
New Amend	ment [check	one]			
Proposed class size	limit: Fo	rmer class size limi	t:		
•					
F	aculty Member	Dep	artment		
Campus extension	En	nail address			
Approved by: _		(Dept. Chair for D	Pept.)		
_		(Division Dean)			
_	·	(Educ. Design Co	mm.)		
(Attach documenta	class size limit for s tion—official cours ditional information	e outline or other o	fficial verification fe	_	See "Procedures for
Note: If comparab	le course is not off	ered, enter "NCC'	" (no comparable c	course) in appropri	ate box.
Santa Monica	Santa Rosa	Pasadena	El Camino	Cerritos	Other*

NOTE: If an external accrediting body requires a class size limit, this section is optional but official documentation of recommended limits must be attached instead.

^{*}Include an alternative choice of another college or another course from our campus that best matches the proposed class, identifying clearly the benchmark you are using. "Other" may also include similar classes at Mt. SAC (identify by course number when using a Mt. SAC class).

III. IN-CLASS" TIME DISTRIBUTION: Give typical typical week for this class using the following teaching app	1 6
Coaching	Performance
Lab	Small group monitoring
Lecture	Special projects
One-on-one instruction	Other (Please explain,
Online interaction with students	[Responses may be written page 2.]
"OUT-OF-CLASS" TIME: Time spent evaluating studen	t work/assignments
Use the space below to provide explanation of teaching a limit you are proposing. (Attach a separate sheet if necessa	
Technology/seat capacity: How is this capacity connected	to educational outcomes? Please explain.

Safety issues and legal mandates regulating class size:				
Enrolment trend for the last two semesters [for a	amended class size reques	sts only]:		
	Semester 1	Semester 2		
Beginning enrolment				
Ending enrolment				
Grade distribution %	A			
	В			
	C			
	D			
	F			
	W			
	I			
Other special considerations:				
Please attach a copy of the official cours	e outline and a represen	tative syllabus to this petition.		
Date submitted to Class Size Committee:				
Date of decision by Class Size Committee:				
Follow-up notification of decision:				
Requesting faculty member				
Educational Design Committee				

Other

APPENDIX C: CHECK LIST FOR CURRICULUM COMMITTEE USE IN DETERMINING COURSE ENROLLMENT MAXIMUMS

Step One: Pedagogical Considerations Based on the Course Outline of Record and Other Evidence Provided by Discipline Faculty.

Instructional and Academic Factors Influencing the Enrollment Cap	Yes or No	Explanation or Evidence Provided in Course Outline of Record
Number of 10+ page papers to grade per student per term		
Number of 3+ page papers to grade per student per term		
Total amount of written work required per term		
Discussion/Participation is expected and graded		
Discussion/Participation is required		
Number of oral presentations required by each student per term		
Course relies on small group dynamics as an element of evaluation.		
Each student is evaluated individually on a set of skills more than twice per term		
Course is designed for a special population of students who require a smaller class size to achieve the goals and intent of the course.		
Course is designed for underprepared students who may need additional attention or assistance.		
Course outcomes anticipate demand of more higher- order, complex thinking skills from students who may therefore need additional guidance from the instructor.		

Step Two: Additional Factors for Consideration After Class Cap is Determined Based on Pedagogical and **Academic Reasons**

Safety and Compliance Factors Influencing the Enrollment Cap	Yes or No	Explanation or Evidence
Health or safety reasons that the class should be capped at a certain number (Examples: pool size for teaching swimming, culinary arts and cooking stations, safety considerations in woodworking class, etc.)		
Standards outside of the college calling for specific student:teacher ratios. (Examples: nursing, police, fire tech, aviation)		
External accreditor or advisory panel recommendation on class size.		
Class maximum has already been determined through negotiations.		

Appendix D: Mathematical Model for Determining Course ENROLLMENT MAXIMUMS

One method for determining the appropriate course size is with a mathematical model. The model described here can be easily implemented with a spreadsheet which makes it readily useable by discipline faculty or curriculum committees.

To use the model, three tasks must be completed by the academic senate or curriculum committee.

- 1. First, pedagogical, academic or student based criteria must be identified. Six to eight criteria are optimal, though the model can work with as many as 10 criteria. Examples of these criteria are level and complexity of assignments, faculty workload, homogeneous or heterogeneous preparation of students, etc.
- 2. Next, each of these criteria must be weighted based on the value given the criteria by the faculty. It's possible to weight all the criteria equally, but chances are that the faculty may find that some criteria tend to stand out as more important, critical, or valuable when comparing all the criteria against each other. The weights of all criteria should add to 100%.(and each weight will be recorded as the decimal version of the percent).
- 3. Finally, and the most challenging, is to assign optimal class sizes to each criterion. These optimal numbers could come from negotiated values, the college down the street, a standard at the local university for the size of recitation sections (not large lectures since community college faculty do not have graduate assistants), or other reasonable measures.

An example is provided for clarity. All numbers and values are strictly for explanatory purposes and should not be seen as the recommended values by the Academic Senate:

Criteria	Initial Course Size for this Criterion	Faculty determined weight for the criterion	Product of column two and three
Complexity of assignments	25 (this number is based on a negotiated class size for a similarly complex course)	0.50	25x0.50=12.5
Faculty Workload	40 (this number is based on the generic course max defined by the college	0.30	40x0.30=12
Heterogeneous Preparation of Students	30 (this number is based on the fact that students with varying levels of preparation require more time and contact with the instructor)	0.20	30x0.20=6
(Add others as desired)		(Remember that all weights as decimals must add up to 1)	
Total			Recommended class cap = 12.5 + 12 + 6 = 30.5 or 31 students