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AUTHOR Taggart, Donna; Valenzuela, Yvonne; Sragovicz, Lisa
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ABSTRACT

This report details a focus group's efforts to ascertain if the Articulation System Stimulating Interinstitutional Student Transfer (ASSIST) implemented on the World Wide Web was easy for students to navigate and use. Another purpose of the analysis was to discover if the information contained within ASSIST was easily understood by community college students. ASSIST is a Web-based transfer planning tool that shows students courses they must complete at California community colleges so that they can successfully transfer to a California state university or University of California campus. Since its inception as a voluntary, pilot activity in 1985, ASSIST has grown substantially and has evolved into California's official repository of transfer and articulation information. A survey, an interactive packet, and focus group interviews were used to collect data regarding the usability/navigability and content of the ASSIST Web site, as well as on the format and content of articulation contained within the ASSIST database. Results indicated that first-time users had initial difficulty navigating the ASSIST Web site and locating the information they sought. But overall, students found the ASSIST Web site easy to manipulate, once they figured out how. (JA)

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Final Report

Analysis of ASSIST Navigability, Usability, and Content Using Student Focus Groups Spring 2000

Submitted to:

The ASSIST Coordination Site

September 18, 2000

Submitted by:

Donna Taggart, Yvonne Valenzuela, and Lisa Sragovicz
Student Development in Higher Education
California State University, Long Beach

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Table of Contents

Executive Summary i

Introduction 1

Purpose of the Analysis 2

Participants 2

Methodology 3

Campus Selection 4

Data Collection 4

Data Analysis 6

Findings: ASSIST Usability and Navigability 6

Findings: ASSIST Content 8

Summary 12

Recommendations 13

References 15

Appendix A – Acknowledgements 16

Appendix B – Demographic Survey 18

Appendix C – Interactive Activity Packet 20

Appendix D – Protocol 24

Appendix E – Focus Group Samples 27

Appendix F – Student Handout 38

EXECUTIVE SUMMARY

Introduction and Purpose of Analysis

This report details the culmination of focus group activities conducted by three graduate students enrolled in the Student Development in Higher Education program at California State University, Long Beach. The purpose of the analysis was 1) to ascertain if ASSIST implemented on the World Wide Web is easy for students to navigate and use, and 2) to discover if the information contained within ASSIST is easily understood by community college students. Furthermore, questions were asked regarding the format and content of articulation agreements (agreements between two institutions that describe how courses transfer for credit).

ASSIST

The Articulation System Stimulating Interinstitutional Student Transfer (ASSIST) is a Web-based transfer planning tool that shows students courses they must complete at California Community Colleges so that they can successfully transfer to a CSU or UC campus. This information – called course articulation – is the vital "transfer road map" for California Community College students. Since its inception as a voluntary, pilot activity in 1985, ASSIST has grown substantially and has evolved into California's official repository of transfer and articulation information as recognized by the California Education Round Table.

Methodology

Focus group activities were conducted during the month of April 2000 at East Los Angeles City, Irvine Valley, and Long Beach City Community Colleges. A total of 69 students enrolled at the three institutions volunteered to participate in 2-hour blocks of focus group activities. A one-page survey was used to gather data regarding the students' transfer readiness, previous knowledge of ASSIST, and computer literacy. Participants were given an interactive packet detailing navigationally related tasks to

help familiarize them with the ASSIST web site. Finally, students participated in an hour-long focus group session.

All students had identified transfer as an educational goal. The 53 female and 16 male participants had completed on average just under 3 semesters of full-time college course work (based on a 12-semester unit, full-time equivalency). The majority of participants had identified a major and transfer campus, had no knowledge of ASSIST prior to the activity, owned or had access to a computer, and accessed the Internet two or more times per week.

A survey, an interactive packet, and focus group interviews were used to collect data regarding the usability/navigability and content of the ASSIST web site as well as the format and content of articulation contained within the ASSIST data base. Furthermore, the focus group protocol inquired about students' expectations and impressions of the ASSIST web site. Five pre-selected samples representing a range of articulation agreement formats were referenced during focus group interviews. A rough analysis of emerging themes across participants in all focus groups was conducted.

Findings and Conclusions

Findings regarding the navigability and usability of ASSIST suggest:

1) First-time users had initial difficulty navigating the ASSIST web site and locating the information they sought.
2) Overall, students found the ASSIST web site easy to manipulate once they figured out how to navigate ASSIST; moreover they were able to find course articulation information easily and demonstrated proficiency in navigating the ASSIST web site.
3) Students sought features that would facilitate ASSIST's use and navigability (e.g., a "Frequently Asked Questions" section on the home page, links from the home page to additional sites containing information about transfer, help balloons defining unfamiliar terms, etc.).

Findings regarding the content of ASSIST suggest:

1) Students preferred consistency in the appearance and content of articulation agreements contained within ASSIST; moreover, students commented that a standardized articulation format was favorable.
2) Students wanted increased major articulation among institutions.
3) Students desired more transfer information as well as articulation with private and out-of-state institutions.
4) Students were misinformed about the information contained in ASSIST and generally expected ASSIST to include more transfer-related information beyond articulation (i.e., financial aid, transfer statistics by institution, student profiles, etc.).
5) Initially, students stated that there was too much information to read and wanted to shorten the amount of information contained within ASSIST; however upon exploration, students stated a preference for longer, more detailed articulation agreements.

Recommendations

Based upon comments obtained from students, the following recommendations are submitted for consideration.

1. Expand this analysis to include a larger sample size representing institutions in each of the 10 Community College regions throughout the State for the purpose of:
   - Determining the reliability and generalizability of these findings,
   - Gaining additional information on improving ASSIST's usability for first-time users,
   - Assessing what types of additional information students would like to see in ASSIST, and
   - Determining how the ASSIST help function could more effectively aids students.
2. Improve site to make navigation easier to first-time users. Examples of suggestions that emerged from focus group sessions included:

- Incorporating other methods of communicating directions (e.g., a flow chart or diagram that flashes arrows or prompt messages) on the page entitled "Welcome to ASSIST."
- Re-titling the "Help for Students" link to make it more reflective of what it contains (e.g., "What you need to know about transfer" and "Student Information at ASSIST"),
- Moving "FAQ's" to the home page, and
- Having key topics such as "FAQ's," "CSU General Education/IGETC," and "Transfer Basics" on the left-side toolbar in a larger font for easier viewing.

3. Designate a consistent format for all articulation entered into ASSIST resulting in a standardized articulation agreement for all institutions. It is recommended that the format include horizontal lines separating the course information, as well as course titles, unit values, and descriptive information at the beginning of the agreement.

4. Improve site to enhance the content provided within ASSIST. Examples of suggestions that emerged from focus group sessions encompassed:
   - Including in the introductory screens a section entitled "What you can expect to find in ASSIST,"
   - Utilizing pop-up, help bubbles containing definitions for terms (e.g., a bubble that appears when the arrow cursor is place over the term articulation, IGETC, CAN, etc.),
   - Incorporating lists of the most popular majors available at different campuses with their related titles (e.g., business is termed business administration, economics, or business and management administration depending on which campus one is referring),
   - Including a student profile with sample courses taken at particular campuses for the major as well as how those courses correspond to general education requirements (e.g., a biology major takes chemistry/math to fulfill science and math requirements in general education/IGETC pattern), and

- Providing links to college-related information such as financial aid, campus web sites, etc.

5. Expand the ASSIST database to contain articulation for private universities and out-of-state institutions.

ASSIST Focus Group Activity

Introduction

Graduate students from the Student Development in Higher Education program at California State University, Long Beach have prepared the following analysis of Project ASSIST (Articulation System Stimulating Interinstitutional Student Transfer) in partial fulfillment of course requirements. Focus group activities were conducted during the month of April, 2000 at East Los Angeles City, Irvine Valley, and Long Beach City community colleges. Of the three facilitators, two were community college students who have successfully transferred to and graduated from public four-year institutions. The perspectives gained from these experiences helped guide the development and direction of the investigation's questions and activities.

In total, 69 community college students from three identified institutions participated in the analysis. Participation was voluntary, and intent to transfer was the only requirement for student participation. Students varied in age, ethnicity, socioeconomic status, and educational background. Although facilitators agreed upon the diversity of the participants, no data were collected regarding these variables.

The analysis attempted to ascertain transfer students' impressions and expectations of ASSIST as well as their perspectives of the effectiveness of the ASSIST site. In addition to their impressions, students were asked specific questions regarding the format and content of articulation agreements (agreements between two institutions that describe how courses transfer for credit). Students were involved in three components of the analysis. Data regarding transfer readiness, previous knowledge of ASSIST, and computer literacy were collected by means of a survey. Upon completion of the survey, students were given an interactive packet of tasks requiring them to navigate the ASSIST web site. Students participated in an hour-long focus group session immediately following the interactive session. What follows is a discussion of the purpose of the analysis, participants, methodology, and findings

pertaining to the usability, navigability, and content of ASSIST. The report concludes with a summary and recommendations. All handouts, samples, surveys, and materials are provided in the appendices.

Purpose of the Analysis

Three evaluations of ASSIST have been conducted prior to this analysis. Evans (1988) studied ASSIST in its initial pilot phase to provide an "outside assessment of ASSIST's accomplishments, problems, and potential, and to assist it and others in making decisions and plans about the project's future" (p. 9). Hess, Holmgren, Claudy, and Campeau (1991), as a follow-up to the 1988 Evans study, conducted a formative evaluation of the organizational structure and implementation of ASSIST. The final study done by the Carrera Consulting Group (1996) was a strategic program assessment focusing on issues of ASSIST's vision, mission, goals, and objectives.

The authors of this analysis found evaluation of the practical application of ASSIST to be lacking in the literature and proposed to conduct a qualitative analysis that was more student-centered and student-services oriented. The purpose of this analysis was 1) to ascertain if ASSIST used on the World Wide Web is easy for students to navigate and use, and 2) to discover if the information contained within ASSIST is easily understood by Community College students.

Participants

A purposive sampling technique was used to select participants from a pool of students intending to transfer that were willing and available to participate in a two-hour session. In total, 69 students participated in the focus group activities. Mean age, ethnicity, and socioeconomic status of the sample are not known, as this information was not relevant to the investigation. There were 53 female and 16 male participants. Students completed on average 2.96 semesters of full-time college coursework, with a standard deviation of 1.65 (calculated based on a 12-semester unit, full-time equivalency). The number of transferable units completed by participants is detailed in Table 1. Of the total number of participants, 63 had identified a major as well as a receiving transfer campus. Only one participant

identified a transfer campus but was an undecided major; furthermore, four students stated majors but were undecided about the transfer campus. One participant was undecided as to both major and transfer campus. More than half of participants (44 students) intended to transfer to a four-year institution within approximately 3 semesters, yet of all the students surveyed, only 10 had applied to a college or university. For the most part, students had obtained information regarding transfer prior to participation (51 students). Students who reported obtaining previous transfer information listed the Transfer Center, a counselor, and university catalogs as the three most popular sources for transfer information. Only 15 students had heard of ASSIST prior to the focus group activity. Overall, the participants were computer savvy; moreover, 68 participants stated that they either owned or had access to a computer, and 56 participants indicated that they had access to the Internet. Of those students who had Internet access, 41 indicated that they accessed the Internet two or more times per week.

Table 1
Transferable Units Completed

Number of Students	Number of Units
13	0 – 12
17	13 – 24
10	25 – 36
10	37 – 48
10	49 – 60
8	60 +
1	Unknown

The sample of students participating in this analysis is extremely small given that there are currently 1,120,218 students enrolled in California Community Colleges (Almanac of Higher Education, 1999). The authors recognize the small sample size as a limitation of the analysis.

Methodology

To gain a clear understanding of students' perceptions and experiences as they relate to the usability and content of ASSIST, 69 students from three colleges participated in 1 of 10 focus group

sessions between April 10, and April 24, 2000. Data was also collected via a survey and during an interactive activity session. One person completed the survey and interactive activity packet but did not participate in the focus group interview; however, data collected from the interactive packet were included in the ASSIST Usability and Navigability section, as they were relevant to the analysis.

Campus selection. East Los Angeles City, Irvine Valley, and Long Beach City colleges were chosen on the basis of three factors. The first factor was the geographic location of the campuses. Each campus was within a 30-mile radius of the ASSIST Coordination Site (ACS) which expedited contact by the facilitators with campus ACS personnel. Each facilitator chose a campus that was accessible and within her own community of residence. The campuses were then selected because of their diverse student populations. Variables such as ethnicity, socioeconomic status, age range, number of students attending full time and available resources were considered during the selection process. The final factor was the information available to students at the respective campuses with regard to transferability of courses to four-year institutions. Each identified campus maintains a functional transfer center with trained staff to assist students with their transfer needs; furthermore, the campuses have computer centers with networking capabilities and access to the ASSIST web site.

Data collection. The protocol and all data collection forms were developed in conjunction with the ASSIST Coordination Site to ensure content validity. Questions were geared toward the usability/navigability, content, and improvement of the ASSIST web site as well as student preferences for the format of articulation. Three tools were used to collect data; these tools were a survey, an interactive packet, and focus group interviews.

In order to assess transfer readiness, prior knowledge of ASSIST, and computer literacy of the student participants, a one-page survey was distributed upon commencement of the activities (see Appendix B). Upon completion, surveys were collected and participants were given an interactive packet which contained detailed instructions asking participants to locate specific items and course

requirements found within the ASSIST web site (see Appendix C). Participants were given approximately 45 minutes to navigate the ASSIST web site, record their answers in the spaces provided in the packet, and track the paths they took to obtain the requested information. Approximately 10% of participants did not have enough time to complete the interactive packet because they came late to the session, had difficulty initially navigating the site, or they spent an inordinate amount of time exploring ASSIST. This does not have a significant impact on the data, as the purpose of the packet was to familiarize participants with the ASSIST web site; furthermore, follow-up questions pertaining to the interactive session were asked during all focus group sessions.

Hour-long focus group sessions were the final means of data collection. Focus group questions inquired about students' expectations and impressions of the ASSIST web site. Students were encouraged to use responses recorded in the interactive session as well as sample articulation agreements to help them answer focus group questions. Five sample articulation agreements, labeled "Sample A" through "Sample E" (see Appendix E), were chosen by the ACS staff. These five samples were selected from both California State University and University of California systems and represented the spectrum of agreements currently in use throughout the State of California. Names of institutions and other distinguishing information were deleted to avoid bias attributed to name recognition. Samples were used to gauge the effectiveness of the format as well as student interpretation and understanding. Samples A-E represented a variety of articulation formats ranging from agreements containing only course numbers (see Sample A), to agreements that included descriptions of the major, course titles and unit values, and information on the Intersegmental General Education Transfer Curriculum (IGETC) and California Articulation Numbers (CAN), (see Samples B, C, and D respectively). To ensure consistency, the facilitators followed a protocol of questions for their focus group interviews (see Appendix D), and the data was audio-recorded for accuracy. At various points

throughout the protocol, students were asked to supply additional comments. Students were given the opportunity to ask questions and provided comments prior to the conclusion of the group interview.

Data analysis. Data were reviewed and analyzed by the evaluators as trained graduate students at California State University, Long Beach. Survey results were compiled to represent total responses for all participants. Percentages were calculated based on a total of 69 responses unless otherwise noted. Interactive packets were coded for the location and date of the study. Responses were color-coded by institution and were compiled to determine participant navigation within the ASSIST web site. The information gathered from the interactive packet also was used to guide the direction of the focus group protocol. A rough analysis of emerging themes across participants in all focus groups was conducted. To maintain the integrity of the data, the evaluators reviewed focus group tapes and notes independently and coded the data by school for each emerging theme. Data were then compiled and color-coded by institution and similarities and emerging themes were indexed. The results are discussed in the following sections of this report.

Findings: ASSIST Usability and Navigability

Finding #1. According to data gathered from the interactive packet, findings indicated that 57 participants were able to accurately navigate the ASSIST site to determine lower division requirements for transfer to an identified institution in a selected major. Only 10 students incorrectly identified lower division requirements, and 2 participants failed to state requirements. Overall, interactive packet responses pointed to similar navigational paths for a majority of the participants. It is undetermined whether students began their search processes by identifying the college from which they are transferring or the university to which they are transferring. When asked to describe the process they took to find information once they had left the ASSIST homepage, student responses included selecting the institution they currently attended, selecting the institution they wanted to attend, going to the "related sites" link, and selecting the "help" link.

Finding #2. Students gave mixed responses regarding the help link. One student stated, "There was a lot of helpful information there that could take you in a lot of different directions; it was a long page." Other students commented, "I went to the help page, and it was pretty interesting, and I tried to go to all of the links," "I went to the help screen, but I didn't read all of it because it was too long," "I tried using the help page, but it wasn't very helpful," and "The help screen could be shorter and easier to read."

Finding #3. Initial responses suggested that students found the web site easy to navigate overall; however, some participants indicated that they could not find the information they were asked to find, and still others, specifically first-time users, did not understand how to navigate the site. One of the themes that emerged based on the usability and navigability of the ASSIST site was that once students understood how to "work" the ASSIST site it was easy to obtain the information they sought as evidenced by the following comment, "It's really easy once you get the hang of it, but I think you do need someone to show you the ropes at first." Other student comments included, "I thought there was going to be more help to guide me through with more explanation," "It seemed easy; it guided me step by step," "Once I figured out how to put in the institution, I was able to do it," and "I think with a little bit of basic assistance, just to show the program a little bit, it's easy. Once you're on, you can move right along."

In essence, students were able to demonstrate proficiency in navigating the ASSIST web site to obtain requested information. One student commented on ASSIST's accessibility, "You can pop on ASSIST at any time of the day; it's real exciting, like when you're up late thinking, 'I'm never going to transfer.'" There were mixed responses regarding the ease of use; however, a basic theme of "it's easy once you get the hang of it" emerged. When asked if there were any other comments regarding the usability and navigability of ASSIST, one student commented, "I thought at the beginning when you are choosing your institution it should say, 'what school you are coming from' and 'what school are you

going to' instead of an open choice; it just says 'pick a school.'" Other comments included, "It's more time consuming as opposed to difficult," "I like that you could just click 'back' and change the school you wanted to look at," and "I like the 'home' button because it didn't take me all the way back to 'Start ASSIST.'"

Finding #4. Students sought features that would facilitate ASSIST's use and navigability. When they were unable to find these features, students made the following suggestions for improving the navigability of ASSIST, "They should have an FAQ section on the home page," "They should have a screen that compares the major requirements of two different [receiving] institutions side by side so we can see the differences," "Maybe if you put more links into the web site in the first home page it would make it more accessible instead of having to go through so many screens," and "They should have more links and help description balloons, like links when you have a word that is unfamiliar like articulation... or something like CAN." One student concluded by saying, "There should be a link on every university site that says, 'If you are interested in what's articulated or what courses are accepted from your college, click here' and take them to ASSIST home."

Findings: ASSIST Content

Finding #1. Overall, data indicated that students were not finding what they thought they would find on the ASSIST web site. There was a wide range of information that students thought they would locate on the ASSIST web site including those things that were contained within the site (such as articulation agreements, specific major requirements, courses needed for transfer and transfer requirements, course equivalents, IGETC and general education requirements, and lower division requirements) as well as information that was not contained within the ASSIST web site. Information that was assumed by participants to be on the web site included admissions requirements and application deadlines, information on specific CSU and UC campuses and policies, career and resume information, class schedules, faculty and staff information, grade requirements, housing information, how credits

transfer from institutions in other countries, minor requirements, out-of-state and private school information, financial aid and scholarship information, transfer tips and helpful hints, rankings of schools and majors, status of majors (e.g., impacted), technical and certificate program requirements, workshops and conferences to prepare for transfer, and statistics on transfer students (e.g., how many are admitted and what your chances are). The majority of students were misinformed about the contents of the ASSIST site. Students did not know how to access additional information through the ASSIST web site even though much of this information can be accessed through UC and CSU system-wide homepage links as well as the CSU Mentor and UC Pathways links located on the "Related Links" page of the ASSIST web site.

Finding #2. Data indicated that participants had a reasonable sense of where to go to find additional information they couldn't find in ASSIST, but that the ASSIST site was lacking in helping them figure out where to go for the information. Comments included, "It [ASSIST] was a little tricky, maybe if there were more topics and not so much reading," "I thought there would be a step-by-step thing on the transfer process, but I didn't find it," and "From the home page there are too many options and not enough specific help; If I wasn't familiar with it [ASSIST web site], I would have gone through every single one [option] to figure out how to get to the information I wanted."

Finding #3. A recurring theme with students was the issue of length with respect to the content. Students indicated a preference for the information to be condensed as is evidenced by the following comments, "It [ASSIST web site] could be simplified and condensed," "I'm fairly decent at the computer, but I found it difficult because there was too much reading," and "Students don't want to do a lot of reading... and there is too much reading on the site." Upon further exploration though, students stated a preference for longer, more detailed articulation agreements. When asked if it was more helpful to have the option/concentration within the major on the articulation agreement rather than having that the information in a separate place, all focus group participants concluded that it would be better to have

a longer, all-inclusive agreement. One student summed it up by saying, "It's helpful [having a longer agreement], but you need to state that it's an option and not just more requirements that need to be taken."

Finding #4. Students also stated a preference for increased major articulation among institutions as well as articulation with private and out-of-state institutions. Students commented, "There could have been more detailed information about all the majors because my major wasn't up there," "They should have more majors... the smaller more specific ones that are harder to find information about," "I would like to see agreements with private colleges as well as other private and public colleges nationally, and more agreements with different majors within different colleges," and "I was expecting information on all the universities, even the private ones, so that you can choose between them,"

Finding #5. A major theme that emerged from all focus groups was the issue of consistency in the appearance and content of the articulation agreements; moreover, students at all three sites engaged in conversations about the effectiveness of having consistent agreements. Students commented that "They [articulation agreements] should all be the same format, so when you're flipping from college to college, you're not having to relearn the new format or figuring it out and wasting a lot of time." One student stated that multiple formats were like "the difference between oranges and apples; you want apples and apples." Students commented on the lack of information on some articulation agreements (Sample A) and the confusing nature of others (Sample D). One student commented regarding Sample D, "It's too confusing. You need a manual to figure it out." When referring to Sample A, one student indicated, "If I were to look at this one [Sample A], it doesn't say anything. If I saw this one [Sample C] then I would have a better sense of the campus and the major. Sample A doesn't give me that."

Finding #6. Seven of the ten focus groups agreed that Sample C was the articulation agreement format that they found most helpful and that they preferred because it included horizontal lines separating the course information as well as course titles and unit values, because it was easy to read and

it made sense, and because it had descriptive information at the beginning of the agreement. One student commented, "C is more detailed, it tells you what you need, and then it categorizes the fields, like mathematics and physics, and then it goes on to lower division requirements. I think it is easier to me." Expressing a contrary opinion, one student stated, "The only problem I had with C was how to read the 'and' and the 'or.'" Students had mixed responses with respect to the inclusion of the IGETC and CAN information contained within the articulation agreements. Students that were familiar with transfer programs were the ones that found the inclusion of this information helpful, whereas students who were not knowledgeable of the general education transfer plans found this information confusing.

Finding #7. Students also were asked if the format of an articulation agreement would influence their decision to attend one particular campus versus another campus. Of the 10 focus group sessions, 5 groups indicated that it would impact their decision whether to attend the institution and 5 groups stated that it would not influence their decision. One student said, "It might change my mind [to attend] because it might indicate that a school is difficult to navigate." Another student stated, "The more organized, the better. I'm not going to a disorganized college. I want to see something that is clear and understandable." On the other hand, one student stated, "No, the catalogue or the counselors may [influence the decision to attend], but not the articulation." Several comments, however, were negatively associated with Sample A. One student indicated, "Sample A is shutting the door" when referring to information related to transferring to that institution. "It [Sample A] would change my mind. I would think that I would have to deal with this type of stuff all the way through," claimed another student. Another student indicated that Sample A was like "handing me a bucket of courses. Sample A is horrible. You might as well crumble this up and give it to me."

In summary, students were asked about the content of the ASSIST site and whether they found the information contained within the site helpful. Students found the content of ASSIST to be helpful, but slightly difficult to access as indicated in the usability/navigability section. Overwhelmingly

students commented that one consistent articulation format was preferable. Students indicated that they preferred the horizontal lines separating the information because "it separates the information from one requirement to the next requirements" and "without the line you wouldn't know where it [the information] stops and starts." All groups agreed that it is most helpful to have the course titles as well as the unit values on the agreements. Students were undecided about whether it was helpful to have the IGETC, CAN and CSU/GE information. Students in 5 of the groups stated that they didn't understand what those identifiers meant. Of the 10 groups, students within 8 of the groups commented on the confusion of the abbreviations of "NC" and stated a preference for the term "not articulated" rather than a blank (as in Sample E) or an "NC" (as in Sample A).

When asked for final comments regarding the content of ASSIST, one student stated that she would like to see an "explanation of abbreviations on articulation agreements." Another student wanted to see examples of "personal profiles" for miscellaneous students in the most popular majors transferring to various institutions.

Summary of Analysis

The information collected suggests overall that students found the ASSIST site to be helpful and would refer to it in the future. One student commented, "I would use it [ASSIST] for my real life." Those students planning to transfer within the next two semesters indicated that they would use ASSIST to ensure a smooth transition and to be informed of their standing upon transfer to their chosen institution. For the most part, the ASSIST site was well received by the participating students, and comments indicated that students could easily navigate the site once they understood how to access the information, "ASSIST, the program itself, I thought was very easy to use, and I am not computer savvy." There was overwhelming unanimity that articulation agreements should follow one standardized format for all institutions. There also were requests to increase major articulation among

institutions as well as with private and out-of-state institutions. On a final note, one student commented, "It is cool that they [ASSIST] have focus groups to hear what the students think."

Recommendations

Based upon comments obtained from students regarding the usability/navigability, format, and content of ASSIST, the authors submit the following recommendations for consideration.

1. Expand this analysis to include a larger sample size representing institutions in each of the 10 Community College regions throughout the State for the purpose of:
   - Determining the reliability and generalizability of these findings,
   - Gaining additional information on improving ASSIST's usability for first-time users,
   - Assessing what types of additional information students would like to see in ASSIST, and
   - Determining how the ASSIST help function could more effectively aids students.
2. Improve site to make navigation easier to first-time users. Examples of suggestions that emerged from focus group sessions included:
   - Incorporating other methods of communicating directions (e.g., a flow chart or diagram that flashes arrows or prompt messages) on the page entitled "Welcome to ASSIST."
   - Re-titling the "Help for Students" link to make it more reflective of what it contains (e.g., "What you need to know about transfer" and "Student Information at ASSIST"),
   - Moving "FAQ's" to the home page, and
   - Having key topics such as "FAQ's," "CSU General Education/IGETC," and "Transfer Basics" on the left-side toolbar in a larger font for easier viewing.
3. Designate a consistent format for all articulation entered into ASSIST resulting in a standardized articulation agreement for all institutions. It is recommended that the format include horizontal lines separating the course information, as well as course titles, unit values, and descriptive information at the beginning of the agreement.

4. Improve site to enhance the content provided within ASSIST. Examples of suggestions that emerged from focus group sessions encompassed:

   - Including in the introductory screens a section entitled "What you can expect to find in ASSIST,"
   - Utilizing pop-up, help bubbles containing definitions for terms (e.g., a bubble that appears when the arrow cursor is place over the term articulation, IGETC, CAN, etc.),
   - Incorporating lists of the most popular majors available at different campuses with their related titles (e.g., business is termed business administration, economics, or business and management administration depending on which campus one is referring),
   - Including a student profile with sample courses taken at particular campuses for the major as well as how those courses correspond to general education requirements (e.g., a biology major takes chemistry/math to fulfill science and math requirements in general education/IGETC pattern), and
   - Providing links to college-related information such as financial aid, campus web sites, etc.

5. Expand the ASSIST database to contain articulation for private universities and out-of-state institutions.

References

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Appendix A

Acknowledgements

This analysis of ASSIST could not have been completed without significant input from a wide range of ASSIST stakeholders. The following is a list of people who contributed their time, knowledge, support, and expertise. We wish to acknowledge each person's contribution to our study and express our appreciation for the information and assistance provided.

People Contributing to the ASSIST Focus Group Activity

Olivia Altamirano, University Transfer Center, East Los Angeles City College

Jess Craig, Dean of Student Services, Irvine Valley College

Eddy Estrada, Chair, Counseling Center/University Center Director, East Los Angeles City College

Kay Goddard, Associate Professor, California State University, Long Beach

Dale Leaman, Implementation Coordinator, ASSIST Coordination Site

Steven Lee, Transfer Center Director, Irvine Valley College

Ginny Mackey, Transfer/Articulation Specialist, Irvine Valley College

Daniel Ornelas, Dean of Student Development and Services, East Los Angeles City College

Dawn Person, Associate Professor, California State University, Long Beach

Cathy Robin, Associate Director, ASSIST Coordination Site

Grace Sown, Articulation Officer and Coordinator of School and College Relations,
Long Beach City College

Eric Taggart, Director, ASSIST Coordination Site

Karon Wolfe, Senior Clerk, School and College Relations, Long Beach City College

A special thank you goes to participating students at East Los Angeles City, Irvine Valley, and Long Beach City Colleges for their candid and insightful comments. Without the involvement of these individuals, this analysis would not be possible.

Appendix B

Please complete the following information to the best of your ability. This information is for statistical purposes only and will be kept confidential.

How many transferable units have you completed?
q 0 – 12 q 13 – 24 q 25 – 36 q 37 – 48 q 49 – 60 q 60 +

When do you plan to transfer?
q Fall 2000 qSpring 2001 q Fall 2001 q Spring 2001 q Fall 2001 or later

Have you already applied to a university? q Yes q No

Have you obtained information regarding transfer prior to this session? q Yes q No
If you answered YES – Where did you obtain this information? q Transfer Center q Counselor
q Professors/Instructors q Friends q University Catalogs q 4-year Campus/Campus Rep.

Have you heard of ASSIST before?
q Yes q No
If you answered YES – Have you used the ASSIST web site prior to today?
q Yes q No
How did you hear about the ASSIST web site
q Counselor q Transfer Center q Friend q Advertisement q Other (specify): _____

Do you own a computer? q Yes q No
If you answered NO – Do you have access to a computer?
q Yes q No
Where? q School q Work q Library q Other (specify): _____

Do you have access to the internet? q Yes q No
If you answered YES – How often do you use the internet?
q Once a week q 2 – 3 times/week q 4 – 6 times/week q 7+ times/week

Are you interested in obtaining the results of this study?
q Yes, send me the results q No, I am not interested

If you answered YES – Please provide contact information below:

Name: _____ Email Address: _____

Address: _____

City/Zip Code: _____ Phone Number: _____

Appendix C

PART II

ASSIST Interactive Session

SECTION A:

In this session, you will be asked to access the ASSIST web site, and obtain specific information. Please use the available resources on the site to obtain this information and document how you found the information using the outline provided below.

1. Please list the kinds of information you think you will find on the ASSIST site:

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

SECTION B:

What is your intended major? _____

Which university are you planning to attend? _____

Using the responses to the above questions, find the information on your major requirements.

STEP 1: Open the web browser, and go to the ASSIST web site at **www.assist.org**
STEP 2: Find the information on the campus you indicated above, and answer the following:

Did you find your chosen institution? q Yes q No
Did you find the information on your major? q Yes q No, If NO – Skip to Section C

Using the space below, list the lower division requirements (coursework) you need to complete prior to transfer? (Keeping track of the process you used to obtain this information will be helpful in completing the next set of questions.)

1. _____ 6. _____

2. _____ 7. _____

3. _____ 8. _____

4. _____ 9. _____

5. _____ 10. _____

Use additional space as needed:

Please describe the steps you used to find the previous information. Which screens did you view to obtain the information? (Use additional space below as needed.)

1. _____ 6. _____

2. _____ 7. _____

3. _____ 8. _____

4. _____ 9. _____

5. _____ 10. _____

If you could not find the information you were looking for in ASSIST, where would you go to find the information? _____

_____

SECTION C:

STEP 1: Find the required core courses for the BIOLOGICAL SCIENCES major for transferring from IRVINE VALLEY COLLEGE to UC IRVINE. Please list the courses that are required for the BIOLOGICAL SCIENCES major at UC Irvine that can be taken at Irvine Valley College prior to transfer.

1. _____ 6. _____

2. _____ 7. _____

3. _____ 8. _____

4. _____ 9. _____

5. _____ 10. _____

Please describe steps used to find information. Which screens did you view to obtain the information? (Use additional space below as needed.)

1. _____ 6. _____

2. _____ 7. _____

3. _____ 8. _____

4. _____ 9. _____

5. _____ 10. _____

SECTION D:

STEP 1: Find the articulated (equivalent) course to Irvine Valley College's "SP 3 (Speech 3) – Argumentation/Debate" at CSU Fullerton.

COURSE TITLE: _____

Please describe steps used to find the above information. Which screens did you view to obtain the information? (Use additional space below as needed.)

1. _____ 6. _____

2. _____ 7. _____

3. _____ 8. _____

4. _____ 9. _____

5. _____ 10. _____

You have now completed the activity session and used the ASSIST site.

Did you find information that you listed in your answer to Question #1 in Section A? q Yes q No
If NO – What information were you unable to find in ASSIST?

_____

_____

Did you find other information? q Yes q No
If YES – What other information did you find?

_____

_____

_____

What additional information would you like to see on the ASSIST web site? _____

_____

_____

_____

Please keep this packet and bring it with you to the interview session.

Thank You
For your participation in Part II
23

Appendix D

FOCUS GROUP PROTOCOL

Thank you for participating in the interactive portion of the study. Now that you have had some experience using ASSIST, this next portion will ask more in-depth questions so we can determine your impressions of ASSIST. With your permission, we would like to audio tape the interviews. Everything that you say will be confidential, and I will be the only one reviewing the tapes. If at anytime you would like the tape stopped, please let me know. The tapes will be held in a secure place for a 3-year time period, and will be destroyed after that. If there are no objections, I will start the tape. This is name, focus group # __, on (date)_____, at name of college. Feel free to use your interactive packet to help you answer the questions. Please be honest with your answers and give comments as needed.

1. **If we could start by having you state your names, your majors, and when you plan to transfer. Anyone can start.**

2. **Prior to the interactive session, what were some of your expectations of the ASSIST site?**

3. **How would you explain to a friend what an "Articulation Agreement" is?**

In section B, you were asked to find information on your individual majors. I'd like to focus on the process and steps you took in using ASSIST.

4. **Which screen, after the ASSIST homepage, did you view first? And why did you choose those particular screens?**

5. **Did you find any other screens with helpful information? Explain.**

6. **Overall, did you find the ASSIST site easy or difficult to navigate? Explain.**

For the next set of questions, I am going to ask you to pretend that you are interested in a career in physics. In fact you are so interested, that you are going to imagine that you are a physics major who is intending to transfer to a university next semester.

With the mindset of a physics major, I am going to ask you to look at some sample agreements that are similar to what you saw during the interactive session. The names of the campuses have been deleted to remove any bias due to name recognition. On each of the agreements, the community college information is always on the left-hand side of the page, and the university information is on the right-hand side. Please refer to these copies to help you answer the questions. Take a few moments to look over and read through these agreements.

7. **Based on the agreements in front of you, labeled "Sample A," "B," "C," "D," and "E," which of these do you find most helpful and why? (Please look at the coursework information for answering this question.)**

8. **Were any of the agreements confusing?**

9. **Which do you find most confusing and why?**

Please comment about the format of the agreements.

10. **Do you have a format preference for any of these agreements? Explain.**

11. **Would the format of an articulation agreement influence your decision to attend a particular university?**

12. **You'll notice that horizontal lines separate the information on some of the samples, for example Sample A & Sample C; does that make a difference to you? Explain.**

Direct your attention to Samples A and C. Notice that Sample C has course titles and unit values and Sample A does not.

13. **On a scale of 1 to 5 with 5 being the most helpful, how important is having course titles and unit values? Why?**

14. **Now look at Sample E. E is a combination of the formats of Samples A and C. Please rank these three agreements in terms of least helpful to most helpful.**

15. **Samples B and C have descriptive information at the beginning of their agreements. On a scale of 1 to 5 with 5 being the most useful, how would you rate the usefulness of that information?**

Notice that Samples C and D have a similar format, but Sample D includes the California Articulation Number or CAN identifiers, the CSU GE information, and IGETC information.

16. **How useful is this information to you? Explain.**

Take a look at Sample A where it says "NC," Sample D page 3 where it says, "not articulated," and page 3 of Sample E where there are blanks.

17. **What do you think this means, and why do you think this information is included?**

Sample E includes some information on concentrations or options within this particular major. Other universities put that information in separate agreements.

18. **Do you have a preference, if at all, between a longer agreement that includes the option within the major or having to go to a different place for each option? Explain.**

Before I ask the last question, is there anything else that you didn't get a chance to say or would like to add?

19. **Do you believe that having these agreements in a consistent format would be more or less helpful? Why?**

20. **Are there any other comments or questions before we conclude today's session?**

I would like to thank you for the valuable information you provided today. Please return the interactive packet before you leave. If you would like to be informed of the results of this study, please be sure that you leave your name and contact information. I am passing out a sheet that explains the analysis and our activities today. At the bottom of the page are the names and email information of the analysis team. Feel free to contact us at any time if you have additional questions or concerns. Please initial that you received your $25.00 bookstore gift certificate before you leave. Thank you again.

Appendix E

Sample A

03/09/2000 Articulation Agreement by Major Page 1
Effective during the 98-99 Academic Year

From: [redacted]	To: [redacted]
99-99 General Catalog Semester	98-99 General Catalog Quarter

==== B. A. in Physics ====

	LOWER-DIVISION REQUIREMENTS
CHEM 1A	CHEM215
CHEM 1B	CHEM216
MATH 3A	MATH211**
&	MATH212**
MATH 3B	MATH213**
MATH 26	MATH251**
MATH 4A	MATH252
PHYS 4A	PHYS221
PHYS 4B	PHYS222
PHYS 4C	PHYS223
NCC	PHYS224
NCC	PHYS228
	Additional requirements for BS in Physics:
CIS 37% & 50L%	CSCI201* 01/05/98

* Additional upper-division options available at [redacted].
** Must be completed with a grade of "C" or better.
% Acceptable substitute.

Sample B

Effective during the 99-00 Academic Year

From: [redacted] | To: [redacted]

Semester | Quarter

==== PHYSICS-B.S./GENERAL PHYSICS-B.A. ====

About the Field

The undergraduate curriculum is broad and general with respect to physics and includes an introduction to theoretical and experimental work in specialized subfields in the senior year.

Opportunities

The Bachelor of Science program provides a basic foundation for students who intend to go on to graduate school in physics or related fields such as engineering or other physical sciences. However, for many this is a terminal degree preparatory to working as an engineer or technician in industry. The Bachelor of Arts program in General Physics provides flexibility for students who are interested in fields outside of physics in which a strong background knowledge of physics would be helpful.

Preparation for the Major

Physics 4A, 4B, and 4C	Physics 1A, 1B, 1C, 4AL, 4BL: Physics for Scientists and Engineers with Laboratory
No equivalent course	Physics 18L: Modern Physics Laboratory
Chemistry 1A and 1B	Chemistry and Biochemistry 20A, 20B 20L: Chemical Structure, Chemical Energetics and Change, and General Chemistry Laboratory
Mathematics 3A and 3B	Mathematics 31A, 31B: Calculus and Analytic Geometry
Mathematics 4A	Mathematics 32A, 32B: Calculus of Several Variables
Mathematics 24 and 26	Mathematics 33A: Matrices and Differential Equations
*	Mathematics 33B: Infinite Series

*Mathematics 3A, 3B, 4A, 24, and 26 are equivalent to [redacted] Mathematics 31AB, 32AB, 33AB 10/22/99

Sample C

Effective during the 99-00 Academic Year
Based on the 99-00 UC Transfer Course Agreement

From: [redacted] | To: [redacted]

Semester | 99-01 General Catalog | Semester

==== Physics, Lower Division A.B. Requirements ====

College Admissions Requirements for Transfer Students

This major is offered by the College of Letters and Science (L&S). You must complete either: (1) the L&S Essential Skills Requirements (Reading & Composition, Foreign Language, and Quantitative Reasoning) or (2) IGETC **by the end of the spring term that precedes fall enrollment at [redacted].**

In addition, you must prepare to undertake upper division courses in your intended major. **Complete as many lower division major requirements as possible before transfer (see below).** In general, strength of academic preparation and grade point average are the primary selection criteria for admission.

For more information, see the [redacted] General Catalog (in print or on the web at: [redacted]).

			MATHEMATICS		
MATH 261	CALCULUS I	(5)	MATH 001A	Calculus	(4) 07/28/94
MATH 262	CALCULUS II	(5)	MATH 001B	Calculus	(4) 07/28/94
MATH 263	CALCULUS III	(5)	MATH 053	Multivariable Calculus	(4) 08/02/95
MATH 270 & MATH 275	LINEAR ALGEBRA ORD DIFF EQNS	(3) (3)	MATH 054	Linear Algebra and Differential Equations	(4) 08/02/95
			PHYSICS		
PHYS 1 & PHYS 2	MECHANICS OF SOLIDS MECHANICS OF FLUIDS, HEAT & SOUND	(4) (4)	PHYSICS 007A	Physics for Scientists and Engineers	(4) 03/21/99
PHYS 2 & PHYS 3	MECHANICS OF FLUIDS, HEAT & SOUND ELECTRICITY & MAGNETISM	(4) (4)	PHYSICS 007B	Physics for Scientists and Engineers	(4) 03/21/99
PHYS 3 PHYS 4	ELECTRICITY & MAGNETISM OPTICS & MODERN PHYSICS	(4) (4)	PHYSICS 007C	Physics for Scientists and Engineers	(4) 03/21/99

Physics, Lower Division A.B. Requirements (continued)

Note: this institution may cover the topics in [redacted] Physics 7ABC series in a different order. Students who transfer before completing courses comparable to the entire 7ABC series may need to enroll in [redacted] Physics 49 in order to make the transition to the next course in the series.

Recommended: CHEM 001A-001B or a substantial high school chemistry course

SEE SERIES			CHEM 001A	General Chemistry	(4) 11/06/91
SEE SERIES			CHEM 001B	General Chemistry	(4) 11/06/91
CHEM 101 &	GENERAL CHEMISTRY I	(5)	CHEM 001A &	General Chemistry	(4)
CHEM 102	GENERAL CHEMISTRY II	(5)	CHEM 001B	General Chemistry	(4) 11/06/91

Note: Those not familiar with a computer programming language are urged to include an introductory course in Computer Science.

The course/s cited above have been officially accepted by this major and approved by both a [redacted] advisory/faculty member and [redacted] articulation coordinator.

Sample D

03/09/2000 Articulation Agreement by Major Page 1

Effective during the 97-98 And 98-99 Academic Years

From: [redacted]		To: [redacted]	
97-98 General Catalog	Semester	97-99 General Catalog	Semester

==== PHYSICS - PHYSICS OPTION ====

LOWER DIVISION REQUIREMENTS

CHEM 1A	GENERAL CHEMISTRY CAN CHEM 2 CSU Cert: B1 B3 IGETC: 5A	(5)	CHEM 037	GENERAL CHEMISTRY CAN CHEM 2 GE Areas: B1	(4) 9/1/91
CHEM 1B	GENERAL CHEMISTRY CAN CHEM 4 CSU Cert: B1 B3 IGETC: 5A	(5)	CHEM 038	GENERAL CHEMISTRY CAN CHEM 4	(4) 9/1/91
MATH 60	FIRST CALCULUS COURSE CAN MATH 18 CSU Cert: B4 IGETC: 2A	(5)	MATH 007A	ANALY GEOM+CALCUL CAN MATH 18 GE Areas: B3	(4)
ARTICULATION ESTABLISHED BY QUALIFICATION OF THESE COURSES IN THE CALIFORNIA ARTICULATION NUMBER SYSTEM (CAN)					9/1/91
MATH 70	SECOND CALCULUS COURSE CAN MATH 20 CSU Cert: B4 IGETC: 2A	(5)	MATH 007B	ANALY GEOM+CALCUL CAN MATH 20 GE Areas: B3	(4)
ARTICULATION ESTABLISHED BY QUALIFICATION OF THESE COURSES IN THE CALIFORNIA ARTICULATION NUMBER SYSTEM (CAN)					9/1/91
MATH 80	THIRD CALCULUS COURSE CAN MATH 22 IGETC: 2A	(5)	MATH 007C	ANALY GEOM+CALCUL CAN MATH 22 GE Areas: B3	(4)
ARTICULATION ESTABLISHED BY QUALIFICATION OF THESE COURSES IN THE CALIFORNIA ARTICULATION NUMBER SYSTEM (CAN)					9/1/91
MATH 85	ELEMENTARY DIFFERENTIAL EQUATIONS CAN MATH 24 IGETC: 2A	(5)	MATH 007A	ANALY GEOM+CALCUL CAN MATH 24 GE Areas: B3	(4)
ARTICULATION ESTABLISHED BY QUALIFICATION OF THESE COURSES IN THE CALIFORNIA ARTICULATION NUMBER SYSTEM (CAN)					9/1/91

THE ABOVE ARTICULATION AGREEMENT IS SUBJECT TO PERIODIC REVISION. PLEASE CONSULT A COUNSELOR EVERY SEMESTER TO OBTAIN CURRENT INFORMATION ABOUT POSSIBLE CHANGES IN THE ARTICULATED COURSES.

PHYSICS - PHYSICS OPTION (continued)

PHYS 3A &	PHYSICS FOR SCI. & ENG. - MECHANICS CAN PHYS SEQ B CSU Cert: B1 B3 IGETC: 5A	(5)	PHYS 004A	MECHANICS CAN PHYS 8 GE Areas: B1	(4)
PHYS 3B &	PHYSICS FOR SCI. & ENG. - E & M CAN PHYS SEQ B CSU Cert: B1 B3 IGETC: 5A	(4)			
PHYS 3C &	PHYSICS FOR SCI. & ENG. - MODERN PHYSICS CAN PHYS SEQ B CSU Cert: B1 B3 IGETC: 5A	(4)			

ARTICULATION ESTABLISHED BY QUALIFICATION OF THESE COURSES IN THE CALIFORNIA ARTICULATION NUMBER SYSTEM (CAN) 9/1/91

PHYS 3A &	PHYSICS FOR SCI. & ENG. - MECHANICS CAN PHYS SEQ B CSU Cert: B1 B3 IGETC: 5A	(5)	PHYS 004B	ELECTR + MAGNET CAN PHYS 12 GE Areas: B1	(4)
PHYS 3B &	PHYSICS FOR SCI. & ENG. - E & M CAN PHYS SEQ B CSU Cert: B1 B3 IGETC: 5A	(4)			
PHYS 3C &	PHYSICS FOR SCI. & ENG. - MODERN PHYSICS CAN PHYS SEQ B CSU Cert: B1 B3 IGETC: 5A	(4)			

ARTICULATION ESTABLISHED BY QUALIFICATION OF THESE COURSES IN THE CALIFORNIA ARTICULATION NUMBER SYSTEM (CAN) 9/1/91

THE ABOVE ARTICULATION AGREEMENT IS SUBJECT TO PERIODIC REVISION. PLEASE CONSULT A COUNSELOR EVERY SEMESTER TO OBTAIN CURRENT INFORMATION ABOUT POSSIBLE CHANGES IN THE ARTICULATED COURSES.

PHYSICS - PHYSICS OPTION (continued)

PHYS 3A &	PHYSICS FOR SCI. & ENG. - MECHANICS CAN PHYS SEQ B CSU Cert: B1 B3 IGETC: 5A	(5)	PHYS 004C	SOUNDS HEAT LIGHT CAN PHYS 14 GE Areas: B1	(4)
PHYS 3B &	PHYSICS FOR SCI. & ENG. - E & M CAN PHYS SEQ B CSU Cert: B1 B3 IGETC: 5A	(4)			
PHYS 3C &	PHYSICS FOR SCI. & ENG. - MODERN PHYSICS CAN PHYS SEQ B CSU Cert: B1 B3 IGETC: 5A	(4)			

ARTICULATION ESTABLISHED BY QUALIFICATION OF THESE COURSES IN THE CALIFORNIA ARTICULATION NUMBER SYSTEM (CAN) 9/1/91

ONE COURSE SELECTED FROM:

NOT ARTICULATED	CSCI 040	SCIENTIFIC PROGRAMMING	(3) 00/00/00
NOT ARTICULATED	PHYS 050	COMP AST PROB SOL	(3) 00/00/00

THE ABOVE ARTICULATION AGREEMENT IS SUBJECT TO PERIODIC REVISION. PLEASE CONSULT A COUNSELOR EVERY SEMESTER TO OBTAIN CURRENT INFORMATION ABOUT POSSIBLE CHANGES IN THE ARTICULATED COURSES.

Sample E

Effective during the 99-00 And 00-01 Academic Years
Based on the 98-99 [redacted] Transfer Course Agreement

From: [redacted] | To: [redacted]

98-00 General Catalog Semester | 99-00 General Catalog Quarter

==== PHYSICS Lower Division ====

Preference will be given to junior-level applicants with the highest grades overall and who have satisfactorily completed the following **required** courses: one year of approved calculus, and one year of calculus bases physics with laboratory.

09/10/99

PHYS 3A &	PHYSICS 7A &	Classical Physics	(4)
PHYS 3B &	PHYSICS 7LA &	Classical Physics Laboratory	(1)
PHYS 3C	PHYSICS 7B &	Classical Physics	(4)
	PHYSICS 7LB &	Classical Physics Laboratory	(1)
	PHYSICS 7C &	Classical Physics	(4)
	PHYSICS 7LC &	Classical Physics Laboratory	(1)
	PHYSICS 7D	Classical Physics	(4)
			09/10/99
	PHYSICS 51A &	Modern Physics	(4)
	PHYSICS 51B &	Modern Physics	(4)
			09/10/99
PHYS 3A &	PHYSICS 52A &	Fundamentals of Experimental Physics	(2)
PHYS 3B &			
PHYS 3C			
(=52A-B ONLY)	PHYSICS 52B &	Fundamentals of Experimental Physics	(2)
	PHYSICS 52C	Fundamentals of Experimental Physics	(2)
			09/10/99
CBIS 11	PHYSICS 53	Introduction to C and Numerical Analysis	(4)
			09/10/99
MATH 60 &	MATH 2A &	Calculus	(4)
MATH 70	MATH 2B &	Calculus	(4)
	MATH 2C	Infinite Series and Three-Dimensional Geometry	(4)
			09/10/99

PHYSICS Lower Division (continued)

	PHY SCI 50A &	Mathematical Methods in the Physical Sciences	(2)
MATH 80 & (=50B ONLY)	PHY SCI 50B &	Mathematical Methods in the Physical Sciences	(2)
MATH 84 **OR** MATH 85 (=50C ONLY)	PHY SCI 50C	Mathematical Methods in the Physical Sciences	(2)
STUDENTS WILL BE REQUIRED TO COMPLETE A MATHEMATICA WORKSHOP AT [redacted]			09/10/99

RECOMMENDED:	RECOMMENDED BUT NOT REQUIRED:		
CHEM 1A & CHEM 1B	CHEM 1A &	General Chemistry	(4)
	CHEM 1B &	General Chemistry	(4)
	CHEM 1LB &	General Chemistry Laboratory	(2)
	CHEM 1C &	General Chemistry	(4)
	CHEM 1LC	General Chemistry Laboratory	(2) 09/10/99

CONCENTRATION IN APPLIED PHYSICS: 09/10/99

RECOMMENDED TO ADD:	RECOMMENDED TO ADD:		
CBIS 11 **OR** CBIS 12	ENGRECE 11	Computational Methods in Electrical and Computer Engineering	(4)
ENGR 17 & ENGR 17L			
	ENGRECE 70A	Network Analysis I	(3)
	ENGRECE 70B &	Network Analysis II	(4)
	ENGRECE 70LB &	Network Analysis II Laboratory	(1) 09/10/99

CONCENTRATION IN BIOMEDICAL PHYSICS ADD: 09/10/99

PHYSICS Lower Division (continued)			
-	BIO SCI 97	General and Evolutionary Genetics	(4) 09/10/99
	BIO SCI 98	Biochemistry	(4) 09/10/99
	BIO SCI 99	Molecular Biology	(4) 09/10/99
CHEM 1A & CHEM 1B	CHEM 1A &	General Chemistry	(4)
	CHEM 1B &	General Chemistry	(4)
	CHEM 1LB &	General Chemistry Laboratory	(2)
	CHEM 1C &	General Chemistry	(4)
	CHEM 1LC	General Chemistry Laboratory	(2) 09/10/99
CHEM 12A & CHEM 12B	CHEM 51A &	Organic Chemistry	(4)
	CHEM 51B	Organic Chemistry	(4) 09/10/99
CONCENTRATION IN COMPUTATIONAL PHYSICS ADD:			09/10/99
CBIS 6 & CBIS 12	I&C SCI 21	Introduction to Computer Science I	(6) 09/10/99
	I&C SCI 22	Introduction to Computer Science II	(6) 09/10/99
	I&C SCI 23	Fundamental DATA Structures	(4) 09/10/99
END OF PHYSICS			09/10/99

Appendix F

www.assist.org

ASSIST is a computerized student-transfer information system that can be accessed via the World Wide Web. The information you view explains how course credits earned at one institution can be applied or transferred to another. ASSIST maintains information for public colleges and universities in California (California Community Colleges, California State Universities, and University of California campuses).

This study is being conducted by the ASSIST Coordination Site with the cooperation of graduate students in the Master of Science in Counseling program at California State University, Long Beach. The information obtained from this study will be used to evaluate the effectiveness of the ASSIST web site and the information contained within the site.

Your participation in the study will be evaluated, and responses to the questions provided in both the survey and the interview session will be kept confidential. Any audio recordings of the sessions will be held in a secured area for three years and will not be used for purposes other than review and analysis in this study.

Thank you again for your participation and your input in this study.

Should you wish to contact the coordinators of the study, you can reach them at the following:

Lisa Sragovicz
xxxxxxxx@xxxxx.xxx
(XXX) XXX-XXXX

Donna Taggart
xxxxxxxx@xxxx.xxx
(XXX) XXX-XXXX

Yvonne Valenzuela
xxxxxxx@xxxxx.xxx
(XXX) XXX-XXXX

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Organization/Address: Student Development in Higher Ed
CSULB, 1250 Bellflower Blvd.
Long Beach, CA 90840

Telephone: (562) 985-5546 FAX: (562) 985-7786

E-Mail Address: lsragovi@csulb.edu Date: 9/21/00