College Curriculum Committee Meeting Agenda
Tuesday, April 15, 2014
2:00 p.m. – 3:30 p.m.
President's Conference Room

Item	Action	Attachment	Presenter/Time
1. Minutes: March 18, 2014	Action	#4/15/14-1	Escoto – 3 min
2. Announcements: a. Notification of Proposed Prequisites/Corequisites b. New Course Proposal c. GE Draft for 2014-15 d. IGETC & CSU GE e. Report Out from Divisions	 Information Information	 #4/15/14-2 #4/15/14-10 #4/15/14-3	 Escoto - 3 min Escoto- 1 min Nuñez - 2 min Day - 3 min Curr Reps - 7 min
3. ADT Reciprocity/Course Substitutions	Information	#4/15/14-4	Escoto, Day - 10 min
4. Content Review Form Modifications	Discussions	#4/15/14-5 & 6	Escoto – 15 min
5. Curricular Calendar	Feedback & Discussion		Escoto, Messina - 10 min
6. Certificate Residency Requirement	Feedback		Escoto - 15 min
7. Lecture/Lab Activity Category	Information	#4/15/14-7, 8 & 9	Messina - 15 min

Consent Calendar:

None

Attachment List:

#4/15/14-1	Draft Minutes: March 18, 2014
#4/15/14-2	CCC Notification of Proposed Prerequisites/Co-Requisites 4.15.14
#4/15/14-3	Draft Foothill GE & Graduation Requirements 2014-15
#4/15/14-4	ADT Reciprocity Course Substitution
#4/15/14-5	Content Review - Form S
#4/15/14-6	Content Review - Form Single form
#4/15/14-7	COR-BIOL 1A
#4/15/14-8	COR-CHEM 1C
#4/15/14-9	COR-MUS 6
#4/15/14-10	New Course Proposal-Nutrition and Food Justice

2013 -2014 Curriculum Committee Meetings

Fall 2013 Quarter:	Winter 2014 Quarter	Spring 2014 Quarter
~~10/1/13~~	~~1/21/14~~	4/15/14
~~10/15/13~~	~~2/4/14~~	5/6/14
~~11/5/13~~	~~2/18/14~~	5/20/14
~~11/19/13~~	~~3/4/14~~	6/3/14
~~12/3/13~~	~~3/18/14~~	6/17/14

* Standing reminder: items for inclusion on the CCC agenda are due no later than one week before the meeting

2013-2014 Curriculum Deadlines

~~*12/1/13* Deadline to submit courses to CSU for CSU GE approval.~~
~~*12/1/13* Deadline to submit courses to UC/CSU for IGETC approval.~~
~~*12/6/13* COR/Title 5 Updates for Fall 2013.~~
~~*3/3/14* Curriculum Sheet Updates for 2013-14.~~
6/1/14 Deadline to submit new/revised courses to UCOP for UC transferability

Ongoing Submission of courses for C-ID approval and course-to-course articulation with individual colleges and universities.

2013-2014 Professional Development Opportunities & Conferences of Interest

~~7/11-13/13 ASCCC Curriculum Institute, Sheraton Park Hotel, Anaheim.~~
~~11/7-9/13 ASCCC Fall Plenary, Irvine Marriott~~
~~11/25/13 Tips for Writing a Great Program Review - Professional Development workshop, 1:00-3:00, Toyon Rm~~
~~12/3/13 Tips for Writing a Great Program Review - Professional Development workshop, 12:00-1:30, Toyon Rm~~
4/10-12-14 ASCCC Spring Plenary, Westin San Francisco Airport
4/11/14 ACCJC Regional SLO/Assessment Workshop, Ohlone College
6/12-14/14 ASCCC Faculty Leadership Institute, Paradise Point Hotel, San Diego
7/10-12/14 ASCCC Curriculum Institute, Hayes Mansion, San Jose Ca

Distribution:
Shawna Aced (Instr), Micaela Agyare (LIBR), Kathy Armstrong (PSME), Rachelle Campbell (BH), Bea Cashmore (ALD), Jerry Cellilo (CNSL), Dolores Davison (AS President), Bernie Day (Articulation Officer), Teresa de la Cruz (Articulation), Isaac Escoto (Faculty Co-Chair), Brian Evans (BSS), Marnie Francisco (PSME), Stephanie Franco (Evaluations), Konnilyn Fieg (BSS), Hilary Gomes (FA), Susan Gutkind (Dean, KA), Brenda Hanning (BH), Robert Hartwell (FA), Carolyn Holcroft (BH), Kay Jones (LIBR), Marc Knobel (PSME), Allison Lenkeit Meezan (BSS), Don MacNeil (KA), Kimberlee Messina (VP, Instruction, Administrator co-chair), Peter Murray (Dean, PSME), Simon Pennington (FA), Barbara Shewfelt (P E), Paul Starer (Dean, L A), Kella Svetich (L A)

Updated 1/21/14

COLLEGE CURRICULUM COMMITTEE

Committee Members - 2013-14

Meeting Date: 4/15/14

Co-Chairs (2)

✓	Isaac Escoto	7350	Vice President, Academic Senate (tiebreaker vote only)	escotoisaac@foothill.edu
✓	Kimberlee Messina	7209	Vice President, Instruction	messinakimberlee@foothill.edu

Voting Membership-12 total; 1 vote per division

✓	Micaela Agyare	7086	LIBR	agyaremicaela@foothill.edu
✓	Kathy Armstrong	7487	PSME	armstrongkathy@foothill.edu
	Rachelle Campbell	7469	BH	campbellrachelle@foothill.edu
	Bea Cashmore	7094	ALD	cashmorebeatrix@foothill.edu
✓	Jerry Cellilo	7224	CNSL	cellilojerry@fhda.edu
✓	Bernie Day	7225	Articulation	daybernie@foothill.edu
	Brian Evans	7575	BSS CNSL	evansbrian@foothill.edu
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	Robert Hartwell	7016	FA	hartwellrobert@fhda.edu
	Carlyon Holcroft	7429	BH	holcroftcarolyn@foothill.edu
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	Allison Lenkeit Meezan	7422	BSS	meezankaren@foothill.edu
	Don MacNeil	6967	K A	macneildon@foothill.edu
✓	Simon Pennington	7015	F A	penningtonsimon@fhda.edu
	Barbara Shewfelt	7658	K A	shewfeltbarbara@foothill.edu
✓	Kella Svetich	7924	L A	svetichkella@foothill.edu
✓	Kurt Hueg	7394	Dean	huegjurt@foothill.edu
	Peter Murray	7472	Dean	murraypeter@foothill.edu
✓	Paul Starer	7227	Dean	starerpaul@foothill.edu

Non-Voting Members (4)

	Teresa de la Cruz	7638	Articulation Assistant	delacruzteresa@foothill.edu
	Stephanie Franco	7231	Evaluations	francostephanie@foothill.edu
	Shawna Aced	7371	Curr/Schedule Asst.	acedshawna@foothill.edu
✓	Cori Nuñez	7439	Curr Coordinator	nunezcori@foothill.edu
	Chris Ju		ASFC	

Visitors:

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College Curriculum Committee
Meeting Minutes
Tuesday, March 18, 2014
2:00 p.m. – 3:32 p.m.
President's Conference Room

Item	Discussion
1. Minutes: March 4, 2014	Minutes as written **M/S** (Armstrong/Hartwell) **Approved**.
2. Announcements: a. Notification of Proposed Prequisites/Corequisites b. Curriculum Cycle Update c. Outline Updates for 2015-16 d. Report Out from Divisions	**Speaker: Isaac Escoto** a. Introduced the latest list of prerequisites and corequisites. Please forward to your constituents. b. Nuñez explained the information in the attachment of CORs still in submissions. If the intention is for the courses to be prepared for the next cycle, authors should change the effective quarter to "Summer 2015". If they are not interested in completing the edits, the submissions should be deleted by the authors as soon as possible. c. This attachment is the list of CORs requiring update in the next curriculum cycle for the 2015-16 Catalog. d. Report out: • **FA:** They are discussing moving their cycle to May 15th. • **LA:** The wording of "Eligibility for ENGL 1A" in the prerequisite and corequiste sections of the CORs has changed to some standard wording: "*Demonstrated proficiency in English by placement into ENGL 1A as determined by score on the English placement test or through an equivalent placement process*". Starer explained that the English faculty are concerned regarding the full explanation and will continue this conversation with the intent to add better language on the web page as well as any printed documents. All instances of the "eligibility" statement in CORs now will be corrected by Nuñez for the 2014-15 Catalog that is currently being prepared. • **BH:** Working on moving their date to just the end of Spring.
3. Consent Calendar a. General Education Applications	**Speaker: Isaac Escoto** GE Applications for Social & Behavioral Sciences: ANTH 2B, 14, 15, 20 & 22. **M/S** (Holcroft/Armstrong) **Approved**.
4. ADTs and C-ID Updates	**Speaker: Bernie Day** • **IGETC for STEM** will be a reduced GE package as a solution for the high unit majors. As a result of this decision, the Chemistry ADT will be allowed to use the "reduced" IGETC pattern. Computer Science will not be allowed to use the "reduced" pattern. • **SB 440** has passed and now we will be required to create ADTs in "areas of emphasis". TMCs will be developed by Spring 2015 and we must have them submitted and approved by Spring 2016. The way that the State is identifying which areas should have ADTs is by selecting those majors that have 200 or more graduates every year. This means that perhaps the General Studies degrees we have may need to move to ADTs. • **C-ID:** We have over 100 courses approved. They're setting up a five-year cycle for updates. Every time a prereqs added to a C-ID we will be able to use that to

	substantiate our prereqs/coreqs. • **ADTs:** There are now 30 available. There were 104 applications in the first year. 18,000 unduplicated students applied for Fall 2014. The Biology TMC is being vetted right now. Child Development TMC will be available shortly. The State recognized that there were some system wide problems with some of the early TMCs, as there were updates issued after some colleges had prepared their applications. Colleges would then have to pull back the application and reapply with the new version. They will now only release TMCs in September and February.
5. COR Review	**Speaker: Cori Nuñez** Nuñez systematically went through a course outline to identify issues that she's received most often. Day suggested that perhaps at each approval level (or C3MS status), there could be designated areas for which each reviewer would be responsible therefore not every reviewer would need to look for every section.
6. Residency for Certificates	**Speaker: Isaac Escoto** Feedback: PSME suggested "more is better than less". LA suggested 50%. The comment was made that CA's are very specialized and more concentrated than AA/AS so wouldn't it be more significant for a certificate with our "name" to have a higher requirement of our courses? Please discuss with your divisions.
7. Curricular Calendar	**Speaker: Isaac Escoto** The longstanding December curriculum deadline is no longer working. With the additions of FHDA Board approvals, the State's 45 day turn around for outline approvals and our own early summer scheduling, there is not enough time to accomplish all the processing. Escoto presented the following options for ranking: 1. Substantial changes in June & non-substantial in October; 2. Non-substantial in June, substantial in October; 3. Everything in June. Please discuss these options with your divisions. We understand that change is difficult but maintaining the December date is no longer feasible.

Attendees:
Minutes Recorded by: C. Nuñez

CCC Notification of Proposed Prerequisites/Co-Requites

The following courses are currently undergoing review for requisite additions or changes. Please contact the Division Curr Rep if you have any questions or comments.

Target Course Number & Title	Editor	Requisite Course Number & Title
ENGR 47 Dynamics	S. Parikh, K. Armstrong	Prereq: ENGR 35 Statistics
PSYC 4	B. Stefonik, E. Lin	Prereq: PSYC 1
RSPT 70C	B. Hanning, L. Miller	Prereq: RSPT 61B and 70B

2/4/14

FOOTHILL COLLEGE
GENERAL EDUCATION & GRADUATION REQUIREMENTS 2014-2015

I. Humanities

Arts: ART 1, 2A, 2AH, 2B, 2BH, 2C, 2CH, 2D, 2E, 2F, 2J, 4A, 5A, 5B, 20B, 36, 45B; DANC 10; GID 1; MDIA 2C, 11; MUS 1, 2A, 2B, 2C, 2D, 2F, 7, 7D, 7E, 8, 8H; PHOT 5, 8, 8H, 10, 10H, 11, 11H; ~~VART 2C;~~ WMN 15.

Letters: ENGL 5, 5H, 7, 7H, 12, 14, 16, 17, 18A, 22, 24, 31, 40, 40H, 41, 46A, 46B, 46C, 48A, 48B, 48C; HUMN 1A, 1B, 3, 3H, 4, 4H; JAPN 14A, 14B; PHIL 2, 20A, 20B, 20C, 24, 25; SPAN 4, 5, 6, 13A, 13B, 14A, 14B;THTR 1, 2A, 2B, 2F, 8, 12A, 26.

II. English

ENGL 1A, 1AH, 1S & 1T; ESLL 26.

III. Natural Sciences (with laboratory)

ANTH 1 w/1L; ASTR 10A w/10L, 10B w/10L, 10BH w/10L; BIOL 9 w/9L, 10, 13, 14, 15, 23, 41: CHEM 1A, 20, 25, 30A; ENGR 39; GEOG 1; HORT 10; PHYS 2A, 4A, 5A.

IV. Social & Behavioral Sciences

ANTH 2A, 2B, 3, 5, 8, 12, 14, 15, 20, 22; BUSI 22, 53; CHLD 1, 2; ECON 1A, 1B, 9, 9H, 25; GEOG 2, 5, 10; HIST 4A, 4B, 4C, 4CH, 8, 9, 9H, 10, ~~15~~, 16, 16H, 17A, 17B, 17C, 18, 20; KINS 2; POLI 1, 3, 3H, 9, 9H, 15, 15H; PSYC 1, 4, 10, 14, 21, 22, 25, 30, 33; SOC 1, 10, 11, 15, 19, 20, 21, 23, 30, 40; SPED 62; WMN 5, 21.

V. Communication & Analytical Thinking

COMM 1A, 1AH, 1B, 1BH, 2, 3, 4, 54A, 55; C S 1A, 1B, 1C, 2A, 2B, 2C, 18; ENGL 1B, 1BH, 50C; GEOG 11; GIST 11; MATH 1A, 1B, 1C, 10, 11, 22, 44, 48A, 48B, 48C, 57; MDIA 3; PHIL 1, 7, 30; PSYC 7; SOC 7.

VI. United States Cultures & Communities

CHLD 51A; COMM 10, 12; ENGL 7, 7H, 12, 40, 40H; HIST 10; MDIA 12; MUS 8, 8H; PSYC 22; SOC 8, 23; SPED 61; THTR 8; WMN 5.

VII. Lifelong Learning

Students must successfully complete a total of four units or more in Lifelong Learning from two different academic departments. For the purpose of this area, ATHL, DANC, PHDA and PHED will be considered one academic department.

ATHL 4, 4A, 4B, 4C, 4E, 4F, 11, 11A, 11B, 11C, 11E, 11F, 12, 12A, 12B, 12C, 12E, 12F, 21, 21A, 21B, 21C, 21E, 21F, 22, 22A, 22B, 22C, 22E, 31, 31A, 31B, 31C, 31E, 31F, 32, 32A, 32B, 32C, 32E, 32F, 33, 33A, 33B, 33C, 33E, 33F, 42, 42A, 42B, 42C, 42E, 42F, 44, 44A, 44B, 44C, 44E, 44F, 45, 45A, 45B, 45C, 45E; BIOL 8, 9, 12; CNSL 1, 52, 72, 90; COMM 2, 10, 12, 55; CRLP 55, 70; DANC 1A, 1B, 1C, ~~2~~, 2A, 2B, 2C, 3A, 3B, 4, 4A, 4B, 4C, 5, 6, 7, 8, 13A, 13B, 14, 18A, 18B; HLTH 21; KINS 4, 17; LIBR 10; PHDA 16, 17, 18, 19, 20, 21A, 21B, 22; PHED 10A, 10B, 10C, 11A, 11B, 11C, 13, 13A, 13B, 13C, 14, 18, 18B, 18C, 19B, 19C, 19D, 20A, 20B, 20C, 21, 21A, 21B, 21C, 21D, 21E, 22, 22A, 22B, 22C, 22E, 23A, 23B, 23C, 24, 24A, 24B, 24C, 24D, 25A, 25B, 26, 26A, 26C, 26D, 26E, 26F, 27, 27A,

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27B. 27C, 28, 31A, 31B, 31C, 31D, 32C, 33, 33A, 33B, 36A, 36B, 36C, 37, 37A, 37B, 38A, 38B, 38C, 38D, 38E, 39, 40, 40A, 40B, 40C, 41, 41A, 41B, 41C, 42, 45, 45A, 45C, ~~45X~~, 46, 46A, 46B, 47B, 47C, 49A, 49B; SPED 61.

Minimum proficiency: ENGL 1A, ENGL 1AH, ENGL 1S & 1T or ESLL 26 and MATH 57 or 105 or 108* completed with a letter grade of "C" or better.

***Intermediate Algebra or equivalent means MATH 105 or mathematics placement test score indicating eligibility for a mathematics course beyond the level of MATH 105, or completion of a higher-level course with a grade of "C" or better, or completion of a bachelor degree or higher from an accredited U.S. college or university.

Academic Senate Statements on

Reciprocity, Course Substitution, and Credit by Exam—in light of AA-T and AS-T degrees

September 2013

Substitution and Reciprocity

The passage of SB 1440 (Padilla, 2010) and the resulting faculty-designed Transfer Model Curriculum (TMC) system have altered the way colleges operate. Today, a higher level of coordination exists across the community colleges and with the universities. This new system affects traditional practices regarding course substitutions and reciprocity.

In the interest of best serving students and establishing an efficient transfer route, the Academic Senate for California Community Colleges (ASCCC) encourages colleges to apply courses successfully completed as part of a TMC-aligned degree at one college for requirements within their own degrees to the greatest extent deemed possible and reasonable (See ASCCC resolution 15.01 Spring 2011). While course substitution decisions remain a matter of local control, students often earn credit at multiple colleges during the course of their academic careers and, therefore, are best served when courses that are taken in good faith as part of a TMC-aligned degree at one college are accepted as part of a TMC-aligned degree at other colleges. Therefore, **the ASCCC strongly urges community colleges to establish policies to allow and encourage acceptance of the courses students have taken at other colleges in a TMC-aligned degree**. While the C-ID system establishes course-to-course reciprocity, where C-ID descriptors are not in place and/or where the substitution does not involve deeming two courses comparable, substitution decisions must be informed by the judgment of discipline faculty. When an AA-T or AS-T is being conferred any substitutions made must result in the awarding of a degree that is consistent with the parameters defined by the TMC.

This recommendation is in the spirit of SB 1440 and the TMC-based statewide solution that faculty developed in response to SB 1440. The ideal case is for colleges and universities to widely accept the courses identified in the TMC and contained within TMC-aligned degrees. The TMC process establishes a transfer pathway that is based on the package of courses that comprise a TMC-aligned degree. Furthermore, the C-ID system identifies course content and standards, and most courses specifically identified and required in TMCs have or will soon have C-ID descriptors.

Example: The TMC for psychology includes three courses in List A: Introduction to Biology, Human Biology, and Introduction to Biological Psychology. Students are required to complete one of these three courses. College X may choose to allow all three of these List A options in their local psychology AA-T degree. However, College Y might decide that Human Biology is necessary for all students and thus might eliminate the other two List A options. A student who took Introduction to Biology at College X, expecting that course to fulfill the List A requirement, but who then enrolled at College Y to complete the associate degree for transfer would have taken a course not included or not fulfilling the same requirements in the local AA-T for psychology at College Y. In such a case, because the student has acted in good faith and the course taken falls within the requirements of the TMC, the ASCCC (and the language of SB 1440) would strongly encourage College Y to accept Introduction to Biology as fulfilling the List A requirement or, at the least, to accept the Introduction to Biology course as fulfilling a List B or C requirement as is allowed by the TMC.

Every TMC (and every discipline) is different, so the extent to which courses can be moved between lists is dependent upon the parameters defined in the individual TMC. The Psychology TMC offers maximum flexibility, permitting any course in the first list of options to be used in one of the later lists, but other TMCs may not permit the same level of flexibility. The Early Childhood Education TMC, for example, specifies all courses in the TMC without options, allowing no substitutions or local variations. Many

TMCs fall somewhere between these extremes, allowing flexibility in some areas but not in all. While the ASCCC encourages course reciprocity and substitution where possible and reasonable, substitutions should only be made in instances where the TMC allows flexibility, as the local AA-T or AS-T degree awarded must remain consistent with parameters of the TMC for the specific discipline.

Local policies and practices may need to be revisited in light of the TMC system; senates and curriculum committees should lead such discussions, ensuring that discipline faculty are responsible for making decisions regarding course substitutions within the TMC-aligned degree requirements. While existing practices may permit colleges to substitute (or not) in any way they choose, for the sake of the TMC system and in the spirit of SB 1440, **the ASCCC urges colleges to allow all reasonable course substitutions that are consistent with the parameters of the TMCs.**

Once all the specifically identified and required courses in TMCs have C-ID descriptors, all colleges have their courses approved in C-ID, and colleges use E-transcripts, the identification of comparable courses will be much simpler. The complicated aspect of reciprocity will continue to be the substitution of non-comparable courses when permitted by the parameters of the TMC. It should be noted that this document pertains to the courses that are specified in the TMC; existing processes related to determining course applicability for general education are not impacted.

If a student transferring in from another community college took a course required for an AA-T or AS-T, but the course does not have a C-ID number or did not have one at the time the it was taken, local course substitution processes should be employed. Note that this presumes that the local course does have a C-ID designation. In the event the local course does not have a C-ID number and is in process with respect to C-ID approval, the local review process should incorporate the C-ID descriptor expectations. For instance, if a local course was submitted to C-ID lacking a required prerequisite the local process for review should incorporate that C-ID descriptor requirement into the local review process.

External Sources of Credit

In addition to allowing reciprocity for courses earned toward a transfer degree at other institutions, colleges should continue to allow students to apply course credit earned through external exams or processes, including AP, CLEP, and IB, to the major requirements for transfer degrees. **Education Code clearly grants the authority to community colleges for the content of the AA –T and AS-T degrees, and this authority extends to community colleges the right and responsibility for granting credit they deem appropriate in the AA/S-T degrees**.

The ASCCC has passed numerous resolutions endorsing the use of external credit and has even created statewide templates to recommend the use of external credit in manners consistent with policies regarding CSU GE and IGETC (see ASCCC Resolutions 9.01 S10, 9.05 F10, 9.06 S07, 9.03 S05, 4.02 S08, 4.03 S08, 4.04 S08, 4,01 S09, 9.04 F10, 9.01 S11). The reasoning in these resolutions applies to AA-T and AS-T degrees as fully as it does to all other applications of their intent and can also include other methods of earning external credit, such as the units often granted to veterans for their experience in military service.

Credit by Exam:

Title 5 provides regulations for community colleges regarding credit by exam (section 55050). Once again, b**ecause Education Code grants community colleges the authority for the content of the AA – T and AS-T degrees, and Title 5 spells out the regulations for credit by exam, colleges retain these authorities when granting AA-T and AS-T degrees.** In other words, **colleges retain the existing authority and responsibility for granting credit they deem appropriate in the AA/S-T degrees**, **including credit earned through internal credit by exam processes**. In short, the existing credit by exam policies remain in place for the new associate degrees for transfer.

REFERENCES

What SB 1440 said:

CEC section 66746. *Community colleges are encouraged to facilitate the acceptance of credits earned at other community colleges toward the associate degree for transfer pursuant to this section.*

ASCCC Resolution

Reciprocity for TMC Courses in Associate Degrees for Transfer 15.01 Spring 2011

Whereas, Senate Bill (SB) 1440 (Padilla, 2010) mandates the creation of associate degrees for transfer (AA-T and AS-T) that include a minimum of 18 units in a major or field of emphasis, and community colleges throughout California are currently in the process of developing these degrees;

Whereas, The Academic Senate for California Community Colleges, in coordination with California State University, is developing Transfer Model Curricula (TMCs) that local colleges can use in the creation of the AA-T and AS-T degrees in order to provide some consistency and structure, and the TMCs allow local colleges freedom to make appropriate alterations within that structure and to include transferable local courses within the discipline that may not exist at other colleges;

Whereas, Many students take courses at multiple community colleges or start at one college and finish at another, and therefore students may begin a transfer degree at one community college and then find that courses they have taken in good faith toward that degree no longer apply when they move to another college, which is a significant issue given the 60-unit restriction for the AA-T and AS-T degrees; and

Whereas, A reciprocity policy regarding major requirements for the AA-T and AS-T degrees would eliminate unnecessary repetitions of classes and thereby reduce college costs, would allow students broader educational opportunities given that different colleges possess differing course offerings, would reduce the amount of local workload created by the circulation of student petitions, and would help students complete their degrees in a more expeditious and effective manner;

Resolved, That the Academic Senate for California Community Colleges urge local senates and curriculum committees to adopt a reciprocity policy for courses contained in the TMC for the associate degrees for transfer.

Title 5—credit by exam

Article 5. Alternative Methods for Awarding Credit
§ 55050. Credit by Examination.

(a) The governing board of each community college district shall adopt and publish policies and procedures pertaining to credit by examination in accordance with the provisions of this section.

(b) The governing board may grant credit to any student who satisfactorily passes an examination

approved or conducted by proper authorities of the college. Such credit may be granted only to a student who is registered at the college and in good standing and only for a course listed in the catalog of the community college.

(c) The nature and content of the examination shall be determined solely by faculty in the discipline who normally teach the course for which credit is to be granted in accordance with policies and procedures approved by the curriculum committee established pursuant to section 55002. The faculty shall determine that the examination adequately measures mastery of the course content as set forth in the outline of record. The faculty may accept an examination conducted at a location other than the community college for this purpose.

(d) A separate examination shall be conducted for each course for which credit is to be granted. Credit may be awarded for prior experience or prior learning only in terms of individually identified courses for which examinations are conducted pursuant to this section.

(e) The student's academic record shall be clearly annotated to reflect that credit was earned by examination.

(f) Grading shall be according to the regular grading system approved by the governing board pursuant to section 55023, except that students shall be offered a “pass-no pass” option if that option is ordinarily available for the course.

(g) Units for which credit is given pursuant to the provisions of this section shall not be counted in determining the 12 semester hours of credit in residence required for an associate degree.

(h) A district may charge a student a fee for administering an examination pursuant to this section, provided the fee does not exceed the enrollment fee which would be associated with enrollment in the course for which the student seeks credit by examination.

Note: Authority cited: Sections 66700 and 70901, Education Code. Reference: Sections 70901 and 70902, Education Code.

Foothill College
Content Review Process & Forms for Prerequisites and Co-requisites ("Requisites")

In order to ensure that limitations on enrollment are both appropriate and necessary for student success, Title 5 requires faculty to complete a rigorous content review whenever new pre- or co-requisites ("requisites") are being considered for a course. Rigorous content review of requisites must also be completed during the regular Title 5 compliance review cycle. **It is imperative that discipline faculty work with their college curriculum committee reps during this process**.

Faculty will use one or more of the following three forms, as appropriate. These are:

A. Content Review Addendum for Mathematics Requisites – to be completed for each math pre- or co-requisite that is placed on a course in a discipline other than math (e.g. a chemistry class requires a math requisite);

B. Content Review Addendum for English Requisites – to be completed for each English or ESLL pre- or co-requisite that is placed on a course in a discipline other than English/ESLL (e.g. a history class requires an English requisite); and

C. Content Review Addendum for Requisites in Disciplines other than Mathematics or English– to be completed when a pre- or co-requisite is placed on a course in the same discipline (e.g. BIOL 40A is a requisite for BIOL 40B) or in a discipline other than English or Math (e.g. CHEM 25 is a requisite for BIOL 45)

S. Content Review Addendum for Requisites of Sequence courses within the same Discipline-- – – to be completed when a pre- or co-requisite is placed on a course other than Math or English. (for example, CHEM 1A as a Pre-requisite for CHEM 1B).

Note: If baccalaureate institutions require a particular requisite for articulation, or if the requisite is imposed by statute or regulation, faculty are **not** required to complete the content review process, but instead must complete only Section I of this form. Content review is also unnecessary if the course is part of a closely related lecture-lab pairing within a discipline (e.g. anatomy laboratory course is co-requisite with anatomy lecture course). **The presence of a requisite on a C-ID descriptor *does not* remove the requirement for content review**.

For guidance regarding how to identify a course that may need a requisite review the document, "How to Identify Courses that May Need Pre- or Co-requisites."

FORM S: Content Review Addendum for Requisites of In-Discipline Course Sequences

Number & Title of Course with Requisite:

CHEM 1A General Chemistry

Number & Title of Requisite Course(s)*

CHEM 20 I MATTER: Introduction to Green Chemistry and the Environment

I. Before you begin content review, please address each of questions 1-4:

1. Do baccalaureate institutions require a particular requisite(s) for articulation? If so, you do NOT need to complete content review, but must document this by attaching the following documentation:

(Ask the Articulation Officer for assistance if necessary)

   a. The listing in ASSIST that details the articulation between the FH course and its corresponding Baccalaureate course. If this is a new course, then you may use instead a similar listing for a corresponding course at another California Community College.
   b. The catalog entry from the baccalaureate institution that details the requisite(s).

   Note: If more than one requisite meets this criterion, then all may be listed. (For example, if both Introductory Chemistry and Intermediate Algebra are required by both the FH course and the Baccalaureate institution, then list both in the box above).*

2. Is a particular requisite required by statute or regulation? If so, attach the documentation to this form, and you're done! You don't need to complete content review.

3. Does De Anza College offer an equivalent course?
   a. If so, what is the De Anza course number?

      CHEM 1A

   b. If so, does their equivalent course have a requisite*? What is it?

      Introductory Chemistry or Equivalent, Intermediate Algebra

   **If an appropriate pre- or co-requisite course is identified and supported by institutional research via the content review process outlined below, discipline faculty are strongly encouraged to consult with De Anza discipline faculty, as implementing a prerequisite on a course at one college and not the other may have unintended consequences on enrollment.*

4. Is there a C-ID descriptor for the target course? If yes, what's the C-ID number?

   Chemistry 120S

   If there is a C-ID descriptor, does it require a requisite? If yes, what is it? (*If the C-ID descriptor requires a requisite, faculty should consider possible ramifications of adding the requisite to the equivalent Foothill course*)

   Intermediate Algebra

Faculty participants in this content review process:**

Kathleen Armstrong, Richard Daley

***(The content review process must include at least two faculty in the target course discipline. In the event that there is only one discipline faculty member at Foothill, the second reviewer(s) may be from another related discipline in the division.*)

II. Once you've decided to explore implementing a requisite, OR if you're completing content review of an already established requisite:

1. Identify the skills and knowledge students must have prior to enrolling in the target course and list them here (these may be contained in Area II of the requisite course's COR):

A. understand the scientific method and distinguish between hypotheses and scientific laws.
B. use dimensional analysis to set up and solve numerical problems.
C. classify matter and describe the properties of matter.
D. understand the fundamental assumptions of atomic theory and describe the structure of the atom.
E. use the periodic table to explain and predict properties of elements.
F. interpret chemical formulas, write simple compound names and recognize classes of compounds based on their formulas.
G. write, balance, and classify chemical equations and recognize patterns of chemical reactivity to predict the products of a chemical reaction.
H. understand the meaning and uses of the mole and of Avogadro's number.
I. describe the properties of solutions and define and use molarity in calculations.
J. describe the properties of acids and bases and understand the basis of the pH scale.

2. Is this a **new** requisite? If so, complete the following additional Content Review. If not, you may skip to step 3 below.
   a. Contact your Division Curriculum Rep to ensure they announce the proposal to implement the requisite at the next CCC meeting. This is to ensure faculty in other divisions/departments are made aware of the proposed requisite and have time to register feedback/concerns BEFORE the requisite is fully adopted. Document the date of the CCC meeting here:

   b. Is the requisite a new course? If so, please state this below and then skip to section III. If not, please Contact the Institutional Researcher to gather and analyze data comparing success rates for students who have completed versus those that have not yet completed the identified prerequisite and document here.

The requisite course is a new course and so data is not currently available

3. If you are completing content review of a **previously implemented** requisite, complete the following:
   a. Contact the Institutional Researcher to gather and analyze student success data disaggregated according to race, ethnicity, gender, age, economic circumstances and disability. Document methodology and findings here:

   b. Review course syllabi (at least one from each faculty who taught a section in the previous year) and artifacts such as exams, assignments and grading criteria. Use the following space to document which of these provides explicit evidence that the identified requisite skills are necessary in ALL sections being offered.
   Note: *If you cannot find evidence that the requisite skills are necessary in every section of the course, the requisite cannot be imposed. If the requisite is to remain in place, discipline faculty should collaborate with their CCC reps and their dean to agree on a plan to ensure that all sections are held to the same rigor necessitating the requisite.*

III. Once the content review process is complete, you must provide this form and appropriate attachments to your Division Curriculum Committee for review and approval.

- If the Division CC determines that the identified requisite is necessary and appropriate for student success, the Division Curriculum Committee will consult with the Division Dean, Vice President of Instruction and Institutional Researcher to assure that the college is offering sufficient numbers of courses, with or without requisites, to accommodate the educational needs of our students.
- The Division CCC rep(s) will notify the CCC of the new requisite at the next CCC meeting.

Submit this completed form and appropriate attachments to your Division Curriculum Committee for review and approval.

Target Discipline Faculty Signature:		Date:	
Target Discipline Faculty Signature:		Date	
Requisite Discipline Faculty Signature:		Date	
Division CC Review & Date of Approval:			
Division Dean Signature:		Date	
VPI Signature:		Date	
Division CC Rep Signature:	Kathleen Armstrong	Date	2/11/2014
Articulation Officer Signature:		Date	

Bugs? Errors? Comments?

Current Course Outline Editor

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Biological and Health Sciences

BIOL 1A PRINCIPLES OF CELL BIOLOGY

Edit Course Outline

BIOL 1A **PRINCIPLES OF CELL BIOLOGY** **Summer 2011**

4 hours lecture, 2 hours lecture-laboratory, 4 hours laboratory. **6 Units**

Total Contact Hours: 120 *(Total of All Lecture, Lecture/Lab, and Lab hours X 12)*

Total Student Learning Hours: 120 *(Total of All Lecture, Lecture/Lab, Lab and Out of Class hours X 12)*

Lecture Hours: 4 **Lab Hours:** 4 **Lecture/Lab:** 2 **Weekly Out of Class Hours:**

Note: If Lab hours are specified, the *item 10. Lab Content* field must be completed.

Repeatability -

Statement: Not Repeatable.

Status -

Course Status: Active **Grading:** Letter Grade with P/NP option

Degree Status: Applicable **Credit Status:** Credit

Degree or Certificate Requirement: AS Degree

Foothill GE Status: Non-GE

Articulation Office Information -

C.I.D. Notation:

Transferability: UC/CSU **Validation:** 07/01/2009; 12/10/10

Division Dean Information -

Seat Count: 48 **Load Factor:** .190 **FOAP Code:** 114000141021040100

Instruction Office Information -

FSA Code: 0340 - BIOLOGICAL SCIENCES

Distance Learning: no

Stand Alone Designation: no

Program Title: Biological Sciences

Program TOPs Code: 040100

Program Unique Code: 6011

Need/Justification -

This course is a required core course for the AS degree in Biology.

1. Description -

An introduction to biological molecules, cellular structure and function, bioenergetics, the genetics of both prokaryotic and eukaryotic organisms, cell communication and signaling, the cell cycle, and elements of molecular biology. Intended for biology majors.

Prerequisite: CHEM 1A.

Co-requisite: None

Advisory: Students taking the biology majors' sequence (BIOL 1A, 1B, 1C, 1D) are strongly advised to take the sequence in its entirety.

2. Course Objectives -

The student will be able to:

A. identify and apply the steps of the scientific method to study a question.
B. relate the themes of biology to the specific topics of cell and molecular biology.
C. discuss the role and importance of water and carbon to life.
D. describe the structures and functions of biological macromolecules.
E. compare and contrast eukaryotic and prokaryotic cell structure.
F. explain the relationship of structure and function, with respect to macromolecules, membranes, organelles, and cells.
G. explain the importance of ATP to the cell and describe the methods available in nature to produce it.
H. compare and contrast chemiosmosis in respiration and photosynthesis.
I. describe mechanisms of cell communication.
J. identify the phases of mitosis.
K. compare and contrast mitosis and meiosis.
L. explain cell cycle regulation and relate it to cancer.
M. solve simple genetic problems.
N. describe DNA replication, transcription, and translation in prokaryotes and eukaryotes.
O. discuss the types and importance of mutations.
P. compare and contrast the organization and control of prokaryotic and eukaryotic genomes.
Q. use and describe instrumentation and techniques commonly found in a cell and molecular biology laboratory.
R. analyze experimental data and draw appropriate conclusions.
S. design an experiment to study an original question and explain experimental techniques and results both orally and in writing.
T. describe some of the contributions made by eminent scientists, including women and minorities, to the fields of molecular and cell biology.
U. explore and discuss scientific issues related to the topics in cell and molecular biology.

3. Special Facilities and/or Equipment -

Multimedia lecture room and fully equipped biology laboratory. Student and instructional computers with internet access.

4. Course Content (Body of knowledge) -

A. The Scientific Method
    1. making observations
    2. asking questions
    3. forming hypotheses
    4. testing hypotheses
    5. experimental conditions
        a. independent variable
        b. dependent variable
        c. controls
        d. repeatability

6. collecting and analyzing results
    a. methods of data display
7. drawing conclusions
8. scientific literature
    a. original research
    b. peer-review
    c. authorship

B. Themes of Biology
1. characteristics of life
2. hierarchical organization of life
    a. The Cell Theory
3. emergent properties
4. correlation of structure and function
5. unity vs. diversity of life
6. evolution
7. taxonomy and binomial nomenclature
8. the nature and limits of science

C. Water and Carbon
1. water
    a. hydrogen bonding of water
    b. properties of water
    1. cohesion and surface tension
    2. temperature buffer
    3. solvent
    d. role of water in chemical reactions
    e. role of water in membrane structure
2. carbon
    a. structure of carbon atom
    b. diversity of organic molecules
    c. functional groups

D. Biological Macromolecules
1. monomers and polymers
2. carbohydrate structure and function
    a. monosaccharides
    b. oligosaccharides
    c. polysaccharides
3. lipid structure and function
    a. unsaturated vs. saturated fatty acids
    b. simple lipids
    c. complex lipids
4. protein structure and function
    a. amino acids
    b. levels of protein folding
    c. denaturation/loss of protein structure prions
5. nucleic acid structure and function
    a. nucleotides
    b. RNA
    c. DNA

E. Cell Structure
1. plasma membrane
    a. fluid mosaic model of membrane structure
    b. structure and function of transmembrane proteins
    c. transport
        1. passive - simple diffusion, facilitated diffusion, osmosis
        2. active - active transport, cotransport
        3. endocytosis - phagocytosis, pinocytosis, receptor-
        4. mediated endocytosis
        5. exocytosis
2. prokaryotic cells
    a. extracellular structures
        1. flagella, pili, capsule, cell wall
    b. intracellular structures
        1. nucleoid, plasmids, ribosomes
3. eukaryotic cells

a. nucleus
    1. chromatin
    2. nucleoli
b. endomembrane system
    1. endoplasmic reticulum
    2. Golgi
    3. vesicles
    4. lysosomes
    5. vacuoles
c. mitochondria and chloroplasts
    1. endosymbiosis
d. peroxisomes
e. ribosomes
f. cytoskeleton
    1. flagella, cilia
g. centrosome/centrioles
h. cell wall
i. intercellular junctions

F. Bioenergetics
1. metabolism
    a. enzymes
    b. ATP and its role in cellular work
    c. metabolic pathways
    d. regulation
    e. autotrophic vs. heterotrophic growth
    f. chemotrophic vs. phototrophic growth
2. respiration
    a. mitochondria structure
    b. glycolysis
    c. Kreb??s cycle
    d. electron transport
    e. chemiosmosis and oxidative phosphorylation
3. fermentation
    a. glycolysis
    b. pyruvate reduction
4. photosynthesis
    a. chloroplast structure
    b. nature of light and its interaction with pigments
    c. light-dependent reactions
        1. photosystems
        2. cyclic and noncylic electron flow
        3. chemiosmosis and photophosphorylation
    d. carbon-fixing reactions
        1. Calvin-Benson cycle
    e. photorespiration
        1. C4 and CAM plants
        2. metabolic diversity in prokaryotes

G. Cell Communication
1. stages of cell signaling
    a. signal reception
    b. signal transduction
        1. phosphorylation/dephosphorylation
            a. kinases
            b. phosphatases
2. second messengers
    a. cyclic AMP
    b. calcium ion
    c. inositol triphosphate
    d. cellular responses
        1. cytoplasmic responses
        2. nuclear responses

H. Cell Cycle and Cell Division
1. cell cycle
    a. G0

    b. interphase
        1. G1
        2. S
        3. G2
    c. mitosis
        1. phases
    d. cytokinesis
2. control of the cell cycle
    a. internal regulatory mechansisms
        1. molecular check points
        2. cyclins
        3. cyclin dependent kinases
    b. external regulatory mechanisms
        1. growth factors
        2. density dependent inhibition
        3. anchorage dependence
    c. cancer
        1. oncogenes
        2. tumor suppressor genes
        3. oncoviruses and carcinogens
3. sexual vs. asexual reproduction
    a. phases of mieosis
    b. sources of genetic variation
    c. methods of sex determination
4. stem cells

I. Genetics
1. Mendelian genetics
    a. Mendel's experimental method
        1. monohybrid crosses
        2. dihybrid crosses
    b. Mendel??s laws
        1. misuse of the term law
        2. principle of segregation
        3. principle of independent assortment
        4. solving inheritance problems
            a. genotype vs. phenotype
            b. dominant vs. recessive
            c. autosomal vs. sex-linked
2. Non-Mendelian patterns of inheritance
    a. incomplete dominance
    b. codominance
    c. linkage
    d. pleiotropy
    e. epistasis
    f. polygenic inheritance
    g. multifactorial inheritance

J. Molecular Biology
1. historical perspective
    a. Griffith experiment
    b. Hershey-Chase experiment
    c. Watson-Crick-Franklin-Wilkins
    d. Meselson-Stahl experiment
2. DNA replication
    a. mechanism
    b. leading vs. lagging strand synthesis
    c. telomeres
        1. aging
        2. cancer
    d. prokaryotic vs. eukaryotic
3. gene expression
    a. Central Dogma
        1. retroviruses
    b. transcription
        1. mechanism

2. RNA processing
3. alternative splicing vs. gene rearrangements
4. prokaryotic vs. eukaryotic

c. translation
1. mechanism
2. ribosome structure
3. tRNA structure
4. the genetic code
5. prokaryotic vs. eukaryotic

d. mutations
1. chromosomal number
2. chromosomal structure
3. point mutations
4. mutagens and mutagenesis

4. control of gene expression
a. constitutive genes
b. prokaryotic mechanisms
1. operon structure and function
2. negative vs. positive control

c. eukaryotic mechanisms
1. organization of the eukaryotic genome
2. chromatin structure modifications
3. transcription and post-transcriptional control

d. applications of molecular biology
1. laboratory techniques: PCR, restriction digest, gel electrophoresis
2. Human Genome Project and bioinformatics
3. ethical considerations: genetic engineering, recombinant DNA, cloning

5. Repeatability - Moved to header area.

6. Methods of Evaluation -

A. One or more lecture midterm exams, which will include summative and formative questions.
B. Comprehensive lecture final exam.
C. One or more lab midterm exams OR frequent lab quizzes, which will include calculations.
D. Comprehensive laboratory practical final exam.
E. Written lecture assignments requiring application of lecture content.
F. Mastering Biology computerized homework questions, summative and formative.
G. Lab homework, including but not limited to, graphs and analysis of laboratory results with written conclusions.
H. One oral laboratory presentation of original experimental design and results.
I. One written laboratory analysis of original experimental design and results.
J. Participation in laboratory group project.
K. Participation in discussions.

7. Representative Text(s) -

Campbell, Neil, and Jane Reece. Biology. 9th Edition. with MasteringBiology, San Francisco: Pearson/Benjamin Cummings, 2011. ISBN: 0321558146
Erickson, Karen. Laboratory Exercises for Biology 1A. Foothill College, 2010.

8. Disciplines -

Biology

9. Method of Instruction -

A. Lecture presentations with individual and/or small group lecture activities
B. Laboratory experiments using the techniques and methodologies of cell and molecular biology
C. Small group discussions on specific topics in cell and molecular biology

10. Lab Content -

A. Skills
   1. apply the scientific method
   2. design an experiment to test an original hypothesis
   3. calculations, including dilutions
   4. graphical display of data
   5. use of standard curves
   6. drawing appropriate conclusions from experimental results

B. Techniques and Instrumentation
   1. measuring devices, including micropipettors
   2. microscopes
   3. spectrophotometer
      a. O.D. vs. %T
   4. PCR/thermal cycler
   5. restriction digest
   6. gel electrophoresis

C. Topics
   1. enzymology
   2. microscopic examination of cells
   3. respiration, fermentation, photosynthesis
   4. genetics
   5. molecular biology

11. Honors Description - No longer used. Integrated into main description section.

12. Types and/or Examples of Required Reading, Writing and Outside of Class Assignments -

A. Reading Assignments
   1. College-level, lower division, biology majors text readings: approximately 40 pages weekly.
   2. Primary and secondary scientific literature.

B. Writing Assignments
   1. Lecture essay questions requiring synthesis and application of lecture content.
   2. Laboratory experimental results interpretation and analysis.

Course status: *Active*

Development status: Approved
Owner-Editor: **nunezcori@foothill.edu**
Edit History:
Comments:
Last updated: 2012-03-13 14:00:23

BIOL 1A PRINCIPLES OF CELL BIOLOGY

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Physical Sciences, Mathematics & Engineering

CHEM 1C GENERAL CHEMISTRY & QUALITATIVE ANALYSIS

Edit Course Outline

CHEM 1C **GENERAL CHEMISTRY & QUALITATIVE ANALYSIS** **Fall 2011**

3 hours lecture, 2 hours lecture-laboratory, 4 hours laboratory. **5 Units**

Total Contact Hours: 108 *(Total of All Lecture, Lecture/Lab, and Lab hours X 12)*

Total Student Learning Hours: 108 *(Total of All Lecture, Lecture/Lab, Lab and Out of Class hours X 12)*

Lecture Hours: 3 **Lab Hours:** 4 **Lecture/Lab:** 2 **Weekly Out of Class Hours:**

Note: If Lab hours are specified, the *item 10. Lab Content* field must be completed.

Repeatability -

Statement: Not Repeatable.

Status -

Course Status: Active **Grading:** Letter Grade with P/NP option

Degree Status: Applicable **Credit Status:** Credit

Degree or Certificate Requirement: AS Degree

Foothill GE Status: Non-GE

Articulation Office Information -

C.I.D. Notation:

Transferability: UC/CSU **Validation:** 07/01/2009

Division Dean Information -

Seat Count: 28 **Load Factor:** .2000 **FOAP Code:** 141754

Instruction Office Information -

FSA Code: 0620 - CHEMISTRY

Distance Learning: no

Stand Alone Designation: no

Program Title: Chemistry

Program TOPs Code: 190500

Program Unique Code: 6087

Need/Justification -

This course is a required core course for the AS degree in Chemistry.

1. Description -

Aqueous ionic equilibria of buffers, solubility product constants and formation constants; properties of solutions including factors affecting solubility, energy changes in the solution process and colligative properties;electrochemistry including the thermodynamics of voltaic cells; introduction to coordination chemistry and bonding theory; nuclear chemistry with emphasis on applications; and, time permitting, an introduction to modern materials. Laboratory parallels lecture topics with an introduction to qualitative inorganic analysis.

Prerequisite: CHEM 1B.

Co-requisite: None

Advisory: None

2. Course Objectives -

The student will be able to:

A. demonstrate an understanding of buffer solutions
B. classify various aqueous solution equilibria
C. calculate the equilibrium constant for various aqueous solution ionic reactions
D. demonstrate an understanding of factors that effect solubility of slightly soluble salts
E. describe the process of solution formation and the energetics involved
F. describe and explain factors that effect solubility
G. calculate concentrations of solutions using various units of concentration
H. describe and explain colligative properties and apply the mathematical equations that describe these properties
I. diagram an electrochemical cell
J. define the anode and cathode in an electrochemical cell
K. contrast and compare an electrolytic cell and a voltaic cell
L. calculate the EMF of an electrochemical cell under standard and non-standard conditions
M. calculate delta G and equilibrium constants from standard cell potentials
N. perform quantitative electrolysis calculations involving current and time
O. describe factors that effect corrosion of iron
P. describe the different types of radioactive decay
Q. describe the difference between fission and fusion
R. calculate the energy involved in a nuclear reaction
S. use half-life to calculate the age of an object
T. describe health and safety issues involving radioactivity
U. describe various uses of radioactive nuclides
V. identify a coordination compound
W. describe the structures and bonding for coordination compounds
X. explain color and magnetism of coordination compounds in term of electronic structure
Y. apply principles of aqueous solubility equilibria to separate and identify the ions in a solution
Z. summarize a separation and identification scheme for various aqueous solutions.
AA. illustrate separation and identification schemes using flow diagrams.
AB. describe some modern materials such as semiconductors, polymers and/or materials for nanotechnology (time permitting)

3. Special Facilities and/or Equipment -

Chemistry laboratory, safety glasses, Texas Instruments 83, 84, 86 or 89 calculators, specialized hardware for digital data acquisition (Vernier LabPro system) and computers for data analysis.

4. Course Content (Body of knowledge) -

Chapters 17, 13, 20, 21, 24, 12(if time permits):

A. Aqueous Equilibria

1. Common Ion Effect
2. Acid/base equilibria: buffers
    a. How buffers work
    b. Calculating buffer pH
    c. Preparing buffers
3. Analysis of acid/base titration curves
4. Solubility equilibria:
    a. Definition of solubility product constant (Ksp)
    b. Using Ksp to predict relative solubilities
    c. Determining Ksp from solubility, determining solubility from Ksp
    d. Factors effecting solubility of slightly soluble salts: common-ion effect, pH and formation of complex ions
    e. Calculating solubility in the presence of a common ion
    f. Selective precipitation (separation) of ions
    g. Simultaneous equilibria involving slightly soluble compounds
5. Complex ion equilibria
    a. Definition of formation constant (Kf)
    b. Complex ion equilibria and calculations involving Kf values
    c. Amphoterism

B. Solutions
1. Calculation of concentrations
    a. ppm, mole fraction, molarity, molality.
2. Energy changes upon solution formation
3. Factors Effecting Solubility
    a. Nature of solute and solvent
    b. Temperature
    c. Pressure.
4. Colligative properties: vapor pressure lowering, boiling point elevation, freezing point depression and osmotic pressure
5. Colligative properties of electrolyte solutions: the van't Hoff factor

C. Electrochemistry
1. Balancing redox reactions using half reaction method
2. Definitions: oxidation, reduction, oxidizing agent, reducing agent
3. Standard Reduction Potentials: strengths of reducing and oxidizing agents
4. Voltaic and Electrolytic Cells:
    a. Determining cell emf under standard conditions (E¬?cell)
    b. Sign of E¬?cell, sign of delta G¬? (Gibbs Free Energy), and spontaneity
    c. Calculating delta G and equilibrium constants (K)
5. Voltaic and Electrolytic Cell diagrams
    a. Reduction occurs at the cathode, oxidation at the anode
    b. The function of the electrolyte and the salt bridge
    c. Direction of electron flow
6. Cell emf under nonstandard conditions
    a. Using the Nernst equation to calculate cell emf
    b. Using cell emf and the Nernst equation to calculate ion concentrations (pH, Ksp)
    c. Concentration cells
7. Batteries
    a. Primary batteries, secondary batteries and fuel cells
8. Corrosion of iron
    a. Sacrificial anodes
9. Electrolysis
    a. Molten salts and aqueous Solutions
    b. Quantitative calculations: relationships/conversions between current, time and amount of a substance oxidized/reduced.

D. Nuclear Chemistry
1. Different types of radioactivity
    a. Detection of radiation
    b. Disintegration series
2. Writing balanced nuclear reactions
3. Energy Changes in nuclear reactions
    a. Nuclear stability and binding energy
4. Kinetics of radioactive decay and half-life
    a. radioactive dating
5. Uses of radioactive nuclides

6. Nuclear fission and fusion
7. Health and safety issues involving radioactivity
    a. units of radiation exposure: rad, rem, gray

E. Coordination Compounds
1. Basic terms
    a. Complex ions, ligands, coordination numbers
2. Structures
3. Bonding
4. Electronic structure
    a. Color and magnetism

F. Modern Materials (time permitting)
1. Metals, Semiconductors and Insulators
2. Polymers
3. Materials for Electronics
4. Materials for Nanotechnology

G. Qualitative Analysis
1. Separation and identification of various ions in aqueous solutions

5. Repeatability - Moved to header area.

6. Methods of Evaluation -

A. Written lecture examinations on fundamental chemical principles: problem solving skills, conceptual understanding of the material and ability to integrate concepts.
B. Laboratory activities, worksheets and reports that parallel lecture topics and include: detailed analysis of buffer systems, titration curves, solubility equilibria, colligative properties, redox chemistry (voltaic and electrochemical cells) and qualitative analysis of unknowns.
C. Written lab exams emphasizing chemical equations, problems, calculations, details of experimental techniques, flow diagrams, and graphs.
D. Laboratory notebook.
E. On-line homework focusing on topics covered in lecture.

7. Representative Text(s) -

Brown, LeMay and Bursten, Chemistry The Central Science, 11th ed. Pearson, 2009.

8. Disciplines -

Chemistry

9. Method of Instruction -

Lecture, Laboratory,

10. Lab Content -

Laboratory develops experimental techniques, critical thinking and data analysis skills, and includes the use of a laboratory notebook. Graphical techniques using Graphical Analysis software are employed for data analysis. Laboratory parallels lecture topics and includes an introduction to qualitative inorganic analysis.

A. Buffers
1. use of a pH electrode
2. determination of suitable weak acid/conjugate base pairs for a given pH
3. calculating amounts of reactants needed to prepare a buffer
4. preparing buffers and measuring buffer pH before and after addition of strong acid and base to the buffer
5. investigating buffer range and capacity

B. Titration Curves
1. using a pH electrode to record titration curve data
2. graphing of titration curves
3. analysis of titration curves for strong and weak acids and bases

C. Solubility Equilibria
1. experimental determination, via titration, of a solubility product constant

2. quantitative investigation of the common ion effect on solubility of a slightly soluble salt

D. Aqueous Equilibria
   1. investigation of Le Chatlier's Principle; shifting equilibria via temperature changes, pH changes and complex ion formation
   2. writing net-ionic equations for observed reactions

E. Voltaic Cells
   1. use of a voltmeter
   2. constructing standard voltaic cells
      a. measurement of the cell voltage
      b. identification of the cathode, anode and overall reaction for voltaic cells
      c. comparison of measured cell voltage to literature values
   3. constructing non-standard voltaic cells
      a. measurement of cell under non-standard conditions
      b. calculation of ion concentrations using the non-standard cell voltage
      c. determination of a solubility product constant

F. Electrolytic Cells
   1. use of a DC power supply
   2. construction of a electrolytic cell
   3. experimental determination of the equivalent mass of a metal

G. Qualitative Analysis: identification of the cations contained in an unknown solution. Concepts learned in lecture are applied to the separation and identification of the cations.
   1. solubility product constants and selective precipitate
   2. complex ion formation
   3. dependence of solubility on pH
   4. flame tests

11. Honors Description - No longer used. Integrated into main description section.

12. Types and/or Examples of Required Reading, Writing and Outside of Class Assignments -

A. Lecture: Three hours per week of lecture covering subject matter from text and related material.
   1. Reading and study of the textbook, related materials and notes.

B. Homework Problems: Homework problems covering subject matter from text and related material ranging from 20 - 40 problems per week.

C. Lab: 2 hours lab lecture and 4 hours lab
   1. Reading and studying experimental background, theory and procedure
   2. Lab notebook containing the purpose, background, procedure, data, analysis and conclusions for each experiment
   3. Computer graphing and graphical analysis of experimental data
   4. Lab Reports: Analysis of data involving quantitative reasoning and calculations, drawing conclusions, critical analysis of results and integration of concepts.

D. Worksheets: Problems and activities covering the subject matter. Such worksheets may be completed both inside and/or outside of lecture and/or lab.

Course status: *Active*

Development status: Approved
Owner-Editor: **rodriguezlucy@foothill.edu**
Edit History:
Comments:
Last updated: 2011-10-12 17:10:40

CHEM 1C GENERAL CHEMISTRY & QUALITATIVE ANALYSIS

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Fine Arts and Communication

MUS 6 COMPOSING & PRODUCING ELECTRONIC MUSIC

Edit Course Outline

MUS 6 **COMPOSING & PRODUCING ELECTRONIC MUSIC** **Summer 2014**

2 hours lecture, 2 hours lecture-laboratory, 3 hours laboratory. **4 Units**

Total Contact Hours: 84 *(Total of All Lecture, Lecture/Lab, and Lab hours X 12)*

Total Student Learning Hours: 168 *(Total of All Lecture, Lecture/Lab, Lab and Out of Class hours X 12)*

Lecture Hours: 2 **Lab Hours:** 3 **Lecture/Lab:** 2 **Weekly Out of Class Hours:** 7

Note: If Lab hours are specified, the *item 10. Lab Content* field must be completed.

Repeatability -

Statement: Not Repeatable.

Status -

Course Status: Active **Grading:** Letter Grade with P/NP option

Degree Status: Applicable **Credit Status:** Credit

Degree or Certificate Requirement: AA Degree, Certificate of Achievement

Foothill GE Status: Non-GE

Articulation Office Information -

C.I.D. Notation:

Transferability: CSU; UC Pending **Validation:** 11/16/13

Division Dean Information -

Seat Count: 37 **Load Factor:** .111 **FOAP Code:** 114000143051100400

Instruction Office Information -

FSA Code:

Distance Learning: yes

Stand Alone Designation: no

Program Title: Music Technology

Program TOPs Code: 100500

Program Unique Code: 11058

Need/Justification -

This course is a support course for the AA degree and Certificate of Achievement in Music Technology.

1. Description -

Introduction to the tools and techniques used to create and perform electronic music in a variety of styles. Programming of virtual analog and digital synthesizers, developing techniques for recording unique instruments and sounds, creating custom single and multi-sample patches using software samplers, using algorithmic composition tools and techniques, building interactive performance systems using object-oriented programming environments, and adapting hardware and software for live performance.

Prerequisite: None

Co-requisite: None

Advisory: None

2. Course Objectives -

The student will be able to:

A. Program virtual analog and digital synthesizers.
B. Record and implement sound elements using samplers.
C. Understand fundamental principles of algorithmic composition.
D. Design interactive performance systems.
E. Create an original electronic music production with synthesizers and samplers.
F. Adapt hardware and software for live performance.

3. Special Facilities and/or Equipment -

A. When taught on campus:
    1. 30 Macintosh computers, MIDI keyboards and MIDI interfaces.
    2. Video projector and screen.
    3. Digital audio workstation software with appropriate virtual instrument plug-ins.
B. When taught via Foothill Global Access:
    1. On-going access to computer with Email software and capabilities.
    2. An Email address.
    3. Java-script enabled internet browsing software.

4. Course Content (Body of knowledge) -

A. Fundamentals of Synthesis
    1. Virtual Analog Synthesis (Lec, L-L, Lab)
    2. Digital Synthesis (Lec, L-L, Lab)
B. Working with Samplers
    1. Sample Recording Techniques (Lec, L-L, Lab)
    2. Creating Single and Multi-Sample Patches (Lec, L-L, Lab)
C. Working with Drum Machines
    1. Basic Drum Programming (Lec, L-L, Lab)
    2. Arranging with Drum Patterns (Lec, L-L, Lab)
    3. The Virtual Drummer (Lec, L-L, Lab)
D. Principles of Algorithmic Composition
    1. Mathematical Models (Lec, L-L, Lab)
    2. Generative Music (Lec, L-L, Lab)
E. Interactive Performance Systems
    1. Music Programming Languages (Lec, L-L, Lab)
    2. Object-Oriented Programming Environments (Lec, L-L, Lab)
F. Live Electronic Music
    1. Software Tools (Lec, L-L, Lab)
    2. Alternate Controllers (Lec, L-L, Lab)

5. Repeatability - Moved to header area.

6. Methods of Evaluation -

A. Graded lab assignments in the operation of virtual synthesizers, samplers, and drum machines.
B. Quizzes on electronic music concepts and terminology.
C. Composition projects requiring application of concepts presented in each module.
D. A graded final project that demonstrates acquired skill in producing and performing electronic music.

7. Representative Text(s) -

Written materials provided by the instructor may include: lecture handouts, hardware and software user guides, guided listening worksheets, and musical scores.

8. Disciplines -

Commercial Music
Music

9. Method of Instruction -

A. Lecture presentations and classroom discussion of the techniques for composing and producing electronic music.
B. In-class listening to historically significant electronic music compositions followed by instructor-guided interpretation and analysis.
C. Presentations of major composition and production projects followed by in-class discussion and evaluation.

10. Lab Content -

A. Synthesis with Virtual Instruments
    1. Virtual Analog
    2. Digital (FM, Physical Modeling, Granular, Spectral)
B. Sampling with Virtual Instruments
    1. Sound Acquisition
    2. Creating Patches
C. Drum Programming with Virtual Instruments
    1. Designing Beats
    2. Working with Patterns
D. Preparing for Live Performance
    1. Mixing to Stems
    2. Creating a Set

11. Honors Description - No longer used. Integrated into main description section.

12. Types and/or Examples of Required Reading, Writing and Outside of Class Assignments -

A. Written critiques and analyses of audio production projects including albums, soundtracks, television, video games and Internet multi-media.
B. Written summaries documenting technical and artistic elements for corresponding submitted assignments and audio projects.
C. Written proposals, session logs, learning outcomes and reflections supporting submitted musical works and final master recordings.

Course status: *Active*

Development status: Approved
Owner-Editor: **kuehnleric@foothill.edu**
Edit History:
Comments:

Last updated: 2014-02-25 15:20:07

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Current Course Outline Editor

Return to Administration

Foothill College
College Curriculum Committee
New Course Proposal

This form should be completed by the faculty author as preparation to writing a new course. Your division CC rep can assist you in completing it appropriately, and will forward it to the Office of Instruction for inclusion as an announcement at the next available CCC meeting. The purpose of this form is ***interdisciplinary communication****. The responsibility to rigorously review and approve new courses remains with the divisional curriculum committees.*

Date Proposal Given to Division CCC Rep:
Faculty Author: Mark Bauermeister (BSS) and Carolyn Holcroft (BHS)

Proposed Number: ?? Cross Listed?
Proposed Transferability: UC and CSU
Proposed Title: Nutrition and Society

Proposed Catalog Description: This is an interdisciplinary course that guides students to explore the role of nutrition in human health and disease, and the sociological factors that influence our food choices and policies in the U.S. Students will explore basic principles of sociology and nutrition using the US food system as a model. The intersection of social justice, sustainability, and nutrition and health will be emphasized throughout the course.

Proposed Discipline:
- Propose team teaching approach with two instructors – one meeting sociology min quals and one meeting biology or nutrition min quals
- Alternatively, if taught by one instructor, min quals = interdisciplinary studies in sociology and biology or nutrition
    - This option means instructor either has master's in sociology and upper division coursework in bio/nutrition OR has master's in biology/nutrition and upper division coursework in sociology

Proposed Need/Justification Statement: Core course in the Foothill College Global Citizenship certificate/degree (in development). Transfer to UC in IGETC Area 4 – Social and Behavioral Sciences. Transfer to CSU in CSU-Breadth area – Sociology and Behavioral Sciences. Also propose for Foothill College GE area IV.

To which Degree(s) or Certificate(s) would this course potentially be added?
Propose as a restricted elective for Sociology A.A. degree, General Studies – Social Sciences A.A. degree,

Comments & Other Relevant Information for Discussion:

Instruction Office:
Date presented at CCC:
Number assigned:
Date number assigned/notification: