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Chair of the Assembly of the Academic Senate
Faculty Representative to the Regents
University of California
1111 Franklin Street, 12th Floor
Oakland, California 94607-5200

July 3, 2024

**YVETTE GULLATT, VICE PRESIDENT & VICE PROVOST
GRADUATE, UNDERGRADUATE AND EQUITY AFFAIRS**

Re: New and Revised UC Transfer Pathways

Dear Vice President Gullatt,

At its May 22 and June 26 meetings, the Academic Council approved ten new UC Transfer Pathways (UCTPs) in Chemical Engineering, Data Science, Statistics, and Earth Science/Geology; as well as Aerospace Engineering, Bioengineering, Civil Engineering, Environmental Engineering, Environmental Science, and Materials Science & Engineering, respectively. Council also approved updates to existing Pathways in Mathematics, Physics, and Chemistry. The new and updated UCTPs were developed by the Academic Council Special Committee on Transfer Issues (ACSCOTI).

Descriptions of the aforementioned UCTPs are attached. We request your assistance in publicizing the new UCTPs as ones that students can begin following as of fall 2024 to allow for their consideration in UC undergraduate admissions decisions beginning in fall 2026.

We look forward to continued collaboration with you and our intersegmental colleagues on improvements to the transfer path that promote student preparation, access, and success in the three systems of California public higher education. Please do not hesitate to contact me if you have any questions.

Sincerely,

A handwritten signature in blue ink, appearing to read "J. Steintrager", is written over a horizontal line.

James Steintrager, Chair
Academic Council

Cc: Academic Council
ACSCOTI
Provost & Executive Vice President Newman
Associate Vice Provost for Undergraduate Admissions Yoon-Wu
Chief of Staff Beechem
Senate Division Executive Directors
Senate Executive Director Lin

Encl.



ACADEMIC COUNCIL SPECIAL COMMITTEE ON TRANSFER ISSUES (ACSCOTI)

James Chalfant, Chair

jim@primal.ucdavis.edu

ACADEMIC SENATE

University of California

1111 Franklin Street, 12th Floor

Oakland, California 94607-5200

March 21, 2024

Dear Jim,

As you know, the Academic Council's Special Committee on Transfer Issues (ACSCOTI) is charged with developing and recommending new UC Transfer Pathways (UCTPs), in consultation with faculty representing the majors that participate. We are pleased to recommend in favor of the creation of a new UCTP for Chemical Engineering. This will be the first new Pathway that the Academic Senate has created since the Pathways' inception nearly ten years ago. With this letter, we ask for the Academic Council's approval and to initiate the process of notification and creating a web-page description of the Pathway.

The impetus for this Pathway came, in part, from the ongoing intersegmental effort to try to establish new Transfer Model Curricula (TMCs) in certain STEM majors. ACSCOTI continues to support this effort, but we are experiencing first-hand the limitations of the TMC framework. Even with the deferral of two CalGETC courses, the unit cap is binding. It is impossible to create TMCs for some majors, where the lower-division demands on students for significant major preparation are simply too great to accommodate both those courses and general-education (GE) requirements. The Chemical Engineering major fits this pattern.

The UCTP model still works, however, for the following reasons:

1. UC does not require an associate's degree for transfer admission, freeing us to consider packages of courses that best prepare students, rather than adhering to the legislative mandate for how an Associate Degree for Transfer is constructed;
2. UC advises students to prioritize major-preparation over completing all of the courses needed to fulfill the GE requirement, and there is no real downside from deferring a small number of GE courses in addition to the two that new TMCs are anticipated to allow;
3. It is still possible—indeed, needed by students interested in the major—to create a list of courses that are required by at least one participating major, for transfer admission, and to use the list to indicate how students can prepare for transfer. Consistent with that definition, no student who completes this UCTP will be denied admission to any of UC's Chemical Engineering majors solely due to not having taken a particular course. In that sense, the student is prepared for every Chemical Engineering major at UC.

This Pathway is important primarily to guide students interested in learning how to prepare for transfer to UC in Chemical Engineering. We would welcome relaxation of the constraints governing TMCs, to the point that the community colleges would be interested in creating a TMC for this major, and the Pathway

would then provide the template for how to prepare for UC using an ADT, should that occur. However, the Pathway's value is also to demonstrate an alternative model, and does not depend on any reforms of TMCs. Students can prepare for UC using this Pathway, and moreover, they can still take advantage of the CalGETC pattern for GE, if the Academic Senate acts on our proposal to extend CalGETC to a four-year window. They would probably defer only four GE courses to be spread over two years at UC. However, even if the Senate does not act, students following the accompanying academic plan will have met the seven-course pattern for UC eligibility, and can avail themselves of campus-based GE patterns. We favor the CalGETC alternative, because it frees the student's planning from adhering to individual, campus-based GE patterns, but the Pathway's value for major preparation does not depend on choice of GE pattern.

The proposed Pathway will consist of the following courses:

- Calculus-based physics (full sequence with lab)
- Single-variable calculus (full sequence)
- Multivariable calculus (one semester course)
- Linear Algebra (one course)
- Differential Equations (one course)
 - General Chemistry (full sequence with lab)
 - Organic Chemistry (full sequence with lab)
 - A programming course (MATLAB is recommended) (one semester)

This happens to be the same as the Chemistry UCTP, with linear algebra now required pre-transfer, as well as an added programming course. The programming course is required for the major at all UC campuses, with MATLAB the preferred language. Four of the majors require that the course be taken before transfer, hence its inclusion in the UCTP. Similarly, linear algebra is required for all majors, and nearly all require the course pre-transfer.

As we have done for other majors, ACSCOTI has prepared a table that shows the courses required for each major that will participate in this UCTP. You can see the table at <http://tinyurl.com/acscoti-tables>, where we have also included a sample academic plan, for the traditional two-year model at a community college. As is evident, the plan permits fulfilling the seven-course pattern and the courses in the UCTP. It would not be feasible to complete all of CalGETC within the allowed 66 units, however. While nothing prevents a student from delaying transfer in order to complete CalGETC, that is precisely the behavior that our proposal regarding SR 479 is intended to prevent, or at least, to leave to the student to decide, instead of making it necessary to delay transfer or convert to a campus-based set of GE requirements.

As you will likely recall, ACSCOTI proposed (in briefing the Academic Council earlier this year) treating students who complete the courses in the UCTP, but are unable to earn an ADT, due to the unit cap, as having the same priority in transfer admissions as do ADT earners in other majors. We think this is a good thing for UC to do and a good thing for students. Especially at a time when concerns exist about diversity in STEM majors, and students are being pushed into ADTs, UC should not enable the implicit trade-off that exists between qualifying for majors like this one and instead earning an ADT. We feel that the creation of the UCTP for Chemical Engineering will help reassure students that they are not losing out by not earning an ADT; we could add force to that message if we back it with a policy on admissions priority. Our proposed Pathway does not depend on that; regardless of any statements admissions priority, on the contrary, our plan represents the best way to prepare to major in Chemical Engineering at UC.

Finally, a few changes will be required in ASSIST, and have already been agreed to by the majors involved:

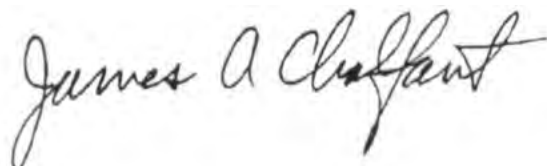
UCSB informed us that their required courses in General Chemistry are now CHEM 3ABC, 2AL and 2BL instead of CHEM 1ABC , 1AL, 1BL, 1CL. ASSIST still shows CHEM 1.

UC Davis told us that they will no longer require ENG 17/35/45 for transfer admission.

UC Berkeley told us that they have only one organic chemistry course (recommended, not required for admission): CHEM 3A&3AL or CHEM 12A.

Thank you for consideration of this proposed Pathway.

Sincerely,

A handwritten signature in black ink that reads "James A. Chalfant". The signature is written in a cursive, flowing style.

James A. Chalfant

Professor Emeritus, Agricultural and Resource Economics, Davis Campus, and
Chair, Academic Council Special Committee on Transfer Issues ([ACSCOTI](#)).



ACADEMIC COUNCIL SPECIAL COMMITTEE ON TRANSFER ISSUES (ACSCOTI)

James Chalfant, Chair

jim@primal.ucdavis.edu

ACADEMIC SENATE

University of California

1111 Franklin Street, 12th Floor

Oakland, California 94607-5200

April 21, 2024

Dear Jim,

ACSCOTI is pleased to recommend in favor of the creation of two new UC Transfer Pathways (UCTP), one for Data Science and one for Statistics. Because they are closely linked, we considered one combined Pathway.

ACSCOTI considered a combined Pathway for Data Science and Statistics, but opted for separate ones. Of course a major may indicate that it participates in just one, or both, a choice left solely to the faculty overseeing the major. However, given our understanding that Data Science is an emerging discipline more dependent on computer programming from the very beginning courses in the field, ACSCOTI felt that this choice should facilitate evolution in either Pathway without the need for all majors to agree.

There is interest in the CCC and CSU systems in a Transfer Model Curriculum (TMC) for Data Science, and as always, our Pathway and the assembled information (<http://tinyurl.com/acscoti-tables>) should provide a clear and concise summary of UC's course expectations for such majors. We think that there is a good chance that a new TMC would align with the UCTP. Our understanding is that currently, Introduction to Data Science courses are not widely offered, though substituting an introductory course in statistics is recognized as a viable strategy in this Pathway. We hope that by conveying information about the majors at UC, we will be encouraging more such courses that are specifically data-science oriented.

Independent of such an effort, the Pathway is worth creating because the participating majors are interested in doing so, recognizing it as a way to promote the transfer route to UC degrees in these majors, and as always, a Pathway provides benefit to students who are trying to select courses to prepare for UC. This proposed Pathway adheres to the definition of a UCTP: there are no courses that any major at UC requires for transfer admission that are not included in the Pathway. Hence, a student completing this set of courses is eligible for comprehensive review for admission for all of the participating majors, and has met the coursework requirements for admission via Transfer Admission Guarantee (TAG) where TAGs are offered for these majors.

With this letter, we therefore ask for the Academic Council's approval and to initiate the process of notification and creating a web-page description of the Pathway.

The proposed Pathway in Data Science will consist of the following courses:

- An introductory course in data science/statistics
- A two-course sequence in single-variable calculus
- Multivariable calculus
- Linear Algebra
- At least two courses in computer programming

The proposed Pathway in Statistics will consist of the following courses:

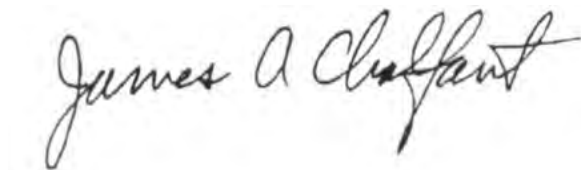
- An introductory course in data science/statistics
- A two-course sequence in single-variable calculus
- Multivariable calculus
- Linear Algebra
- Differential Equations

As we have done for other majors, ACSCOTI has prepared tables that show the courses required for each major that will participate in either of these UCTPs. Inspection of the table shows that any additional requirements, beyond the Pathway, may be strongly recommended for admission, but not required (i.e., orange), or identified as courses that can be deferred until after transfer with no significant effect on time to degree (i.e., green). You can see the table at <http://tinyurl.com/acscoti-tables>, where we have also a sample academic plan that combines the two majors, for the traditional two-year model at a community college. The plan allows completion of the full set of Cal-GETC requirements.

The tables we have developed include numerous comments conveying recommendations to students, but none require any changes in ASSIST.

Thank you for consideration of these proposed Pathways.

Sincerely,

A handwritten signature in black ink that reads "James A. Chalfant". The signature is written in a cursive, flowing style.

James A. Chalfant
Professor Emeritus, Agricultural and Resource Economics, Davis Campus, and
Chair, Academic Council Special Committee on Transfer Issues ([ACSCOTI](http://tinyurl.com/acscoti)).



ACADEMIC COUNCIL SPECIAL COMMITTEE ON TRANSFER ISSUES (ACSCOTI)

James Chalfant, Chair

jim@primal.ucdavis.edu

ACADEMIC SENATE

University of California

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Oakland, California 94607-5200

April 21, 2024

Dear Jim,

Continuing our effort to create new UC Transfer Pathways (UCTPs), after consulting with faculty representing the majors that participate, ACSCOTI is pleased to recommend in favor of the creation of a new UCTP for Earth Science/Geology. This will be the first instance where a new Pathway is proposed for a set of majors for which the community colleges already offer Associate Degrees for Transfer, based on the [Transfer Model Curriculum \(TMC\) for Geology](#). Our review of this TMC leads us to conclude that the intersegmental Transfer Alignment Project could take up the question of whether the TMC aligns with the UCTP, with a high likelihood of success.

Independent of such an effort, the Pathway is worth creating because the participating majors are interested in doing so, recognizing it as a way to promote the transfer route to UC degrees in these majors, and as always, a Pathway provides benefit to students who are trying to select courses to prepare for UC. This proposed Pathway adheres to the definition of a UCTP: there are no courses that any major at UC requires for transfer admission that are not included in the Pathway. Hence, a student completing this set of courses is eligible for comprehensive review for admission for all of the participating majors, and has met the coursework requirements for admission via Transfer Admission Guarantee (TAG) in majors on the six participating campuses.

With this letter, we therefore ask for the Academic Council's approval and to initiate the process of notification and creating a web-page description of the Pathway.

The proposed Pathway will consist of the following courses:

- Single-variable calculus (full sequence)
- General Chemistry (full sequence with lab)
- A course in Physical Geology

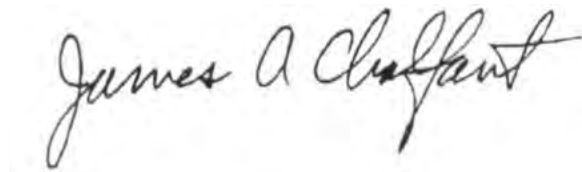
As we have done for other majors, ACSCOTI has prepared a table that shows the courses required for each major that will participate in this UCTP. Inspection of the table shows that any additional requirements, beyond the Pathway, may be strongly recommended for admission, but not required (i.e., orange), or identified as courses that can be deferred until after transfer with no significant effect on time to degree (i.e., green). You can see the table at <http://tinyurl.com/acscoti-tables>, where we have also included a sample academic plan, for the traditional two-year model at a community college. The plan suggests deferring two

courses required for CalGETC, consistent with Senate Regulation 479. Doing so facilitate including courses such as multivariable calculus and a sequence in physics. We recommend that these courses remain outside of the Pathway, so as to adhere to the strict definition, but that language accompanying the requirements be included, as is typical of other Pathways web sites, indicating that we recommend taking multivariable calculus and physics before transfer. As always, for students who have identified a particular set of majors of interest, ACSCOTI favors major preparation over completion of general-education (GE) requirements.

One change is required in ASSIST: UCSD Geosciences BS agreed to drop MATH 20C as an admission requirement and replace it with CHEM 6ABC.

Thank you for consideration of this proposed Pathway.

Sincerely,

A handwritten signature in black ink that reads "James A. Chalfant". The signature is written in a cursive, flowing style.

James A. Chalfant
Professor Emeritus, Agricultural and Resource Economics, Davis Campus, and
Chair, Academic Council Special Committee on Transfer Issues ([ACSCOTI](#)).



ACADEMIC COUNCIL SPECIAL COMMITTEE ON TRANSFER ISSUES (ACSCOTI)

James Chalfant, Chair

jim@primal.ucdavis.edu

ACADEMIC SENATE

University of California

1111 Franklin Street, 12th Floor

Oakland, California 94607-5200

May 22, 2024

Dear Jim,

The Academic Council's Special Committee on Transfer Issues (ACSCOTI) is pleased to recommend in favor of the creation of a new UC Transfer Pathway (UCTP) for Aerospace Engineering. With this letter, we ask for the Academic Council's approval and to initiate the process of notification and creating a web-page description of the Pathway.

Currently, there are no Transfer Model Curricula (TMCs) and hence no Associate Degrees for Transfer (ADTs) for engineering majors. When UC faculty created the Transfer Pathways, Electrical and Mechanical Engineering were included. This major now will become one of several new STEM Pathways, expanding considerably the range of options for students that will be guided by Pathways.

The proposed Pathway will consist of the following courses:

- Calculus-based physics (full sequence with lab)
- Single-variable calculus (full sequence)
- Multivariable Calculus
- Linear Algebra
- Differential Equations
- A course in computer programming (MATLAB)
- General Chemistry (full sequence with lab)
- Materials
- Statics
- Circuits

As we have done for other majors, ACSCOTI has prepared a table that shows the courses required for each major that will participate in this UCTP. You can see the table at <http://tinyurl.com/acscoti-tables>, where we have also included a sample academic plan, for the traditional two-year model at a community college. ACSCOTI continues to feel very strongly that the information in these tables, and the sample course plans, should be routinely provided to prospective students, and to any faculty or staff advisors seeking to understand UC's course and major requirements.

As the sample study plan shows, students can use the Pathway to complete their major preparation and also the seven-course pattern for transfer admission; however, they fall well short of completing Cal-GETC. We do not anticipate interest in trying to create a TMC, because the unit-cap constraint will be binding. Students

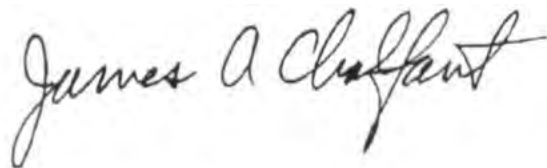
may wish to complete Cal-GETC all the same; however, this seems more likely for students who extend preparation to three or more years (not uncommon in engineering majors who begin at community colleges), and even then, it will not result in the student receiving an Associate degree. To achieve that outcome, the community colleges would need to create associate degrees based on our Pathway, outside the SB1440/AB928 model. ACSCOTI would welcome interest in creating such degrees, but our Pathway proposal does not depend on that occurring.

As you are of course aware, ACSCOTI still favors allowing students in this major to use Cal-GETC as their general-education pattern. If the Senate acts on our proposal to allow additional deferrals, students interested in this major will have additional and much-needed flexibility, permitting them to spread remaining GE courses over two years after transfer to a UC campus, exactly what we allow four-year students to do. However, even if the Senate does not act, students following the accompanying academic plan will have met the seven-course pattern for UC eligibility, and can avail themselves of campus-based GE patterns. We favor the CalGETC alternative, with additional deferrals as needed, because it frees the student's planning from adhering to individual, campus-based GE patterns, but the Pathway's value for major preparation does not depend on choice of GE pattern. Importantly, such choices are not dictated by rules such as those governing ADTs and are left to the student.

As always, the notes accompanying our table are important. Typically, at this point in our letter we would list required changes in ASSIST, but for this major, none appear to be needed.

Thank you for consideration of this proposed Pathway.

Sincerely,

A handwritten signature in black ink that reads "James A. Chalfant". The signature is written in a cursive, flowing style.

James A. Chalfant

Professor Emeritus, Agricultural and Resource Economics, Davis Campus, and
Chair, Academic Council Special Committee on Transfer Issues ([ACSCOTI](#)).



ACADEMIC COUNCIL SPECIAL COMMITTEE ON TRANSFER ISSUES (ACSCOTI)

James Chalfant, Chair

jim@primal.ucdavis.edu

ACADEMIC SENATE

University of California

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Oakland, California 94607-5200

May 22, 2024

Dear Jim,

The Academic Council's Special Committee on Transfer Issues (ACSCOTI) is pleased to recommend in favor of the creation of a new UC Transfer Pathway (UCTP) for Bioengineering. With this letter, we ask for the Academic Council's approval and to initiate the process of notification and creating a web-page description of the Pathway. Along with the usual reasons for promoting UC Transfer Pathways, it is worth noting that the May 2022 compact with Governor Newsom emphasized supporting "career pipelines" in technology, climate action, healthcare, and education. Bioengineering certainly fits the first and third of these priorities.

Like other engineering majors, there is no Transfer Model Curriculum (TMC) and hence no Associate Degrees for Transfer (ADT) for Bioengineering. The Pathway represents the only model for preparing for this major. Bioengineering now will become one of several new STEM Pathways, expanding considerably the range of options for students that will be guided by Pathways.

The proposed Pathway will consist of the following courses:

- Calculus-based physics (full sequence with lab)
- Single-variable calculus (full sequence)
- Multivariable Calculus
- Linear Algebra
- Differential Equations
- General Chemistry (full sequence with lab)
- Organic Chemistry (full sequence with lab)
- Biology (full introductory sequence)
- One programming course
- Circuits

As we have done for other majors, ACSCOTI has prepared a table that shows the courses required for each major that will participate in this UCTP. You can see the table at <http://tinyurl.com/acscoti-tables>, where we have also included a sample academic plan, for the traditional two-year model at a community college. ACSCOTI continues to feel very strongly that the information in these tables, and the sample course plans, should be routinely provided to prospective students, and to any faculty or staff advisors seeking to understand UC's course and major requirements.

As the sample study plan shows, students can use the Pathway to complete their major preparation and also the seven-course pattern for transfer admission; however, they fall well short of completing Cal-GETC. As noted, it is possible to achieve the goal of completing all but two courses when specific campuses' requirements are followed, for several campuses, but not for the full set. Bioengineering is simply too demanding for units devoted to major preparation, and illustrates, perhaps better than is the case for any other major, the fact that insisting on all of GE being completed in the first two years interferes with preparation for the major.

We do not anticipate interest in trying to create a TMC, because the unit-cap constraint will be binding. Students may wish to complete Cal-GETC all the same; however, this seems more likely for students who extend preparation to three or more years (not uncommon in engineering majors who begin at community colleges), and even then, it will not result in the student receiving an Associate degree. To achieve that outcome, the community colleges would need to create associate degrees based on our Pathway, outside the SB1440/AB928 model. ACSCOTI would welcome interest in creating such degrees, but our Pathway proposal does not depend on that occurring.

As you are of course aware, ACSCOTI still favors allowing students in this major to use Cal-GETC as their general-education pattern. If the Senate acts on our proposal to allow deferring additional courses, students interested in this major will have additional and much-needed flexibility, permitting them to spread remaining GE courses over two years after transfer to a UC campus, exactly what we allow four-year students to do. However, even if the Senate does not act, students following the accompanying academic plan will have met the seven-course pattern for UC eligibility, and can avail themselves of campus-based GE patterns. We favor the CalGETC alternative, with additional deferrals as needed, because it frees the student's planning from adhering to individual, campus-based GE patterns, but the Pathway's value for major preparation does not depend on choice of GE pattern. Importantly, such choices are not dictated by rules such as those governing ADTs and are left to the student.

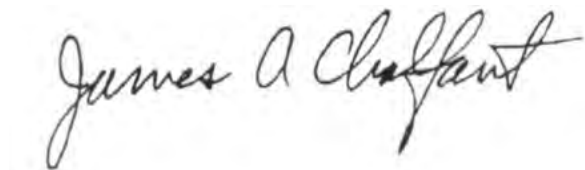
As always, the notes accompanying our table are important. Two rise to the level of calling for changes to ASSIST:

Irvine is working on changing BME 60B from a required (red) to a recommended (orange) course.

Los Angeles is switching to Python for the programming course.

Thank you for consideration of this proposed Pathway.

Sincerely,

A handwritten signature in black ink that reads "James A. Chalfant". The signature is written in a cursive, flowing style.

James A. Chalfant
Professor Emeritus, Agricultural and Resource Economics, Davis Campus, and
Chair, Academic Council Special Committee on Transfer Issues ([ACSCOTI](#)).



ACADEMIC COUNCIL SPECIAL COMMITTEE ON TRANSFER ISSUES (ACSCOTI)

James Chalfant, Chair

jim@primal.ucdavis.edu

ACADEMIC SENATE

University of California

1111 Franklin Street, 12th Floor

Oakland, California 94607-5200

May 22, 2024

Dear Jim,

The Academic Council's Special Committee on Transfer Issues (ACSCOTI) is pleased to recommend in favor of the creation of a new UC Transfer Pathway (UCTP) for Civil Engineering. With this letter, we ask for the Academic Council's approval and to initiate the process of notification and creating a web-page description of the Pathway..

Like other engineering majors, there is no Transfer Model Curriculum (TMC) and hence no Associate Degrees for Transfer (ADT) for Civil Engineering. The Pathway represents the only model for preparing for this major. Civil Engineering now will become one of several new STEM Pathways, expanding considerably the range of options for students that will be guided by Pathways.

The proposed Pathway will consist of the following courses:

- Calculus-based physics (full sequence with lab)
- Single-variable calculus (full sequence)
- Multivariable Calculus
- Linear Algebra
- Differential Equations
- General Chemistry (full sequence with lab)
- One programming course
- Statics

As we have done for other majors, ACSCOTI has prepared a table that shows the courses required for each major that will participate in this UCTP. You can see the table at <http://tinyurl.com/acscoti-tables>, where we have also included a sample academic plan, for the traditional two-year model at a community college. ACSCOTI continues to feel very strongly that the information in these tables, and the sample course plans, should be routinely provided to prospective students, and to any faculty or staff advisors seeking to understand UC's course and major requirements.

As the sample study plan shows, students can use the Pathway to complete their major preparation and also the seven-course pattern for transfer admission. We do not anticipate interest in trying to create a TMC, because the unit-cap constraint will be binding, so completing GE in order to earn an associate degree may not be an issue. Students may wish to complete Cal-GETC all the same; however, this seems more likely for

students who extend preparation to three or more years (not uncommon in engineering majors who begin at community colleges), and even then, it will not result in the student receiving an Associate degree. To achieve that outcome, the community colleges would need to create associate degrees based on our Pathway, outside the SB1440/AB928 model. ACSCOTI would welcome interest in creating such degrees, but our Pathway proposal does not depend on that occurring.

As you are of course aware, ACSCOTI still favors allowing students in this major to use Cal-GETC as their general-education pattern. If the Senate acts on our proposal to allow deferring additional courses, students interested in this major will have additional and much-needed flexibility, permitting them to spread remaining GE courses over two years after transfer to a UC campus, exactly what we allow four-year students to do. However, even if the Senate does not act, students following the accompanying academic plan will have met the seven-course pattern for UC eligibility, and can avail themselves of campus-based GE patterns. We favor the CalGETC alternative, with additional deferrals as needed, because it frees the student's planning from adhering to individual, campus-based GE patterns, but the Pathway's value for major preparation does not depend on choice of GE pattern. Importantly, such choices are not dictated by rules such as those governing ADTs and are left to the student.

As always, the notes accompanying our table are important. Those that rise to the level of calling for changes to ASSIST are show below:

Berkeley recommends that, if the recommended courses are not articulated, a course in statics and a course in computer programming be completed even if not articulated.

CHEM 1B for Berkeley can be replaced by BIOLOGY 1B or CIV ENG 70.

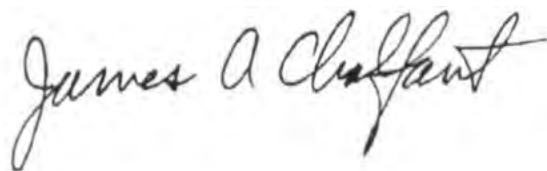
Irvine accepts a programming course in any structured programming language (MATLAB preferred).

CHEM 1C and 1LC are being dropped as admission requirements.

UCLA offers C&EE 108 online in the Summer, and encourages incoming transfer students to take it just before transfer.

Thank you for consideration of this proposed Pathway.

Sincerely,

A handwritten signature in black ink that reads "James A. Chalfant". The signature is written in a cursive, flowing style.

James A. Chalfant
Professor Emeritus, Agricultural and Resource Economics, Davis Campus, and
Chair, Academic Council Special Committee on Transfer Issues ([ACSCOTI](#)).



ACADEMIC COUNCIL SPECIAL COMMITTEE ON TRANSFER ISSUES (ACSCOTI)

James Chalfant, Chair

jim@primal.ucdavis.edu

ACADEMIC SENATE

University of California

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Oakland, California 94607-5200

May 22, 2024

Dear Jim,

The Academic Council's Special Committee on Transfer Issues (ACSCOTI) is pleased to recommend in favor of the creation of a new UC Transfer Pathway (UCTP) for Environmental Engineering. With this letter, we ask for the Academic Council's approval and to initiate the process of notification and creating a web-page description of the Pathway.

Like other engineering majors, there is no Transfer Model Curriculum (TMC) and hence no Associate Degrees for Transfer (ADT) for Environmental Engineering. The Pathway represents the only model for preparing for this major. Environmental Engineering now will become one of several new STEM Pathways, expanding considerably the range of options for students that will be guided by Pathways.

The proposed Pathway will consist of the following courses:

- Calculus-based physics (full sequence with lab)
- Single-variable calculus (full sequence)
- Multivariable Calculus
- Linear Algebra
- Differential Equations
- General Chemistry (full sequence with lab)
- Organic Chemistry (full sequence with lab)
- One programming course
- Statics
- One course in Biology with lab

As we have done for other majors, ACSCOTI has prepared a table that shows the courses required for each major that will participate in this UCTP. You can see the table at <http://tinyurl.com/acscoti-tables>, where we have also included a sample academic plan, for the traditional two-year model at a community college. ACSCOTI continues to feel very strongly that the information in these tables, and the sample course plans, should be routinely provided to prospective students, and to any faculty or staff advisors seeking to understand UC's course and major requirements.

As the sample study plan shows, students can use the Pathway to complete their major preparation and also the seven-course pattern for transfer admission. We do not anticipate interest in trying to create a TMC,

because the unit-cap constraint will be binding, so completing GE in order to earn an associate degree may not be an issue. Students may wish to complete Cal-GETC all the same; however, this seems more likely for students who extend preparation to three or more years (not uncommon in engineering majors who begin at community colleges), and even then, it will not result in the student receiving an Associate degree. To achieve that outcome, the community colleges would need to create associate degrees based on our Pathway, outside the SB1440/AB928 model. ACSCOTI would welcome interest in creating such degrees, but our Pathway proposal does not depend on that occurring.

As you are of course aware, ACSCOTI still favors allowing students in this major to use Cal-GETC as their general-education pattern. If the Senate acts on our proposal to allow deferring additional courses, students interested in this major will have additional and much-needed flexibility, permitting them to spread remaining GE courses over two years after transfer to a UC campus, exactly what we allow four-year students to do. However, even if the Senate does not act, students following the accompanying academic plan will have met the seven-course pattern for UC eligibility, and can avail themselves of campus-based GE patterns. We favor the CalGETC alternative, with additional deferrals as needed, because it frees the student's planning from adhering to individual, campus-based GE patterns, but the Pathway's value for major preparation does not depend on choice of GE pattern. Importantly, such choices are not dictated by rules such as those governing ADTs and are left to the student.

As always, the notes accompanying our table are important. Those that rise to the level of calling for changes to ASSIST are show below:

Irvine accepts a programming course in any structured programming language (MATLAB preferred).

Some or all of the three asterisked courses for Berkeley can be replaced by PHYS 7C, CHEM 3B&3BL, EPS 50 or BIOL 1B.

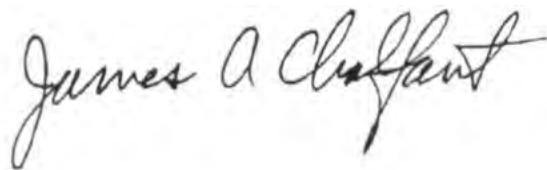
Riverside requires two of the five asterisked courses should be completed before transfer.

Merced recommends either BIO 5 or ESS 1 or ESS 5 to be completed before transfer. ESS 1/5 has been chosen in this table to align with other campuses

Berkeley recommends that, if courses are not articulated, students should still take a course on statics and a course on computer programming.

Thank you for consideration of this proposed Pathway.

Sincerely,

A handwritten signature in black ink that reads "James A. Chalfant". The signature is written in a cursive, flowing style.

James A. Chalfant

Professor Emeritus, Agricultural and Resource Economics, Davis Campus, and
Chair, Academic Council Special Committee on Transfer Issues ([ACSCOTI](#)).



ACADEMIC COUNCIL SPECIAL COMMITTEE ON TRANSFER ISSUES (ACSCOTI)

James Chalfant, Chair

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ACADEMIC SENATE

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June 17, 2024

Dear Jim,

The Academic Council's Special Committee on Transfer Issues (ACSCOTI) is pleased to recommend in favor of the creation of a new UC Transfer Pathway (UCTP) for Environmental Science. With this letter, we ask for the Academic Council's approval and to initiate the process of notification and creating a web-page description of the Pathway.

As you know, Environmental Science was named in the list of STEM majors for which the AB 928 Oversight Committee recommended a Transfer Model Curriculum (TMC) to prepare students for CSU and UC simultaneously. The Transfer Alignment Project has held off initiating the development of such a TMC pending the creation of a UCTP. Alignment, of course, requires something with which to align, which we now will have.

The majors participating in this Pathway are somewhat more homogeneous than is usually the case, so some elaboration may be helpful here. As always, we are constructing the Pathway by including courses that any one of the participating majors requires for transfer admission. It will be helpful for readers of this letter to look at the table describing those requirements, at <http://tinyurl.com/acscoti-tables>. As we have done for other majors, we have also included a sample academic plan, for the traditional two-year model at a community college. ACSCOTI continues to feel very strongly that the information in these tables, and the sample course plans, should be routinely provided to prospective students, and to any faculty or staff advisors seeking to understand UC's course and major requirements.

Clearly a year of general chemistry, a year of biological science, a year of calculus-based physics, and a year of single-variable calculus all are needed. Each is required by at least one major, and several other majors indicate that the courses are strongly recommended. The case for organic chemistry, economics, and statistics courses is a little weaker, in each case. The Pathway can accommodate all of these requirements, but they also illustrate the value of our recommendation that Pathways always be accompanied by information showing which majors require which courses. For instance, a student not focusing on either Berkeley or Los Angeles would likely not place as high a priority on organic chemistry; that course is needed for two of the three concentrations at Berkeley, and strongly recommended by UCLA. The course in economics is needed for Berkeley's Environmental Science BS major, but not for Environmental Earth Science BA, nor is the course mentioned by UCLA. Similar comments apply to statistics. We included these three courses in the Pathway, but not a course in geology; three campuses strongly recommend the latter, but none require it. Hence, a student might well want to substitute geology for organic chemistry,

depending on which campuses are of interest. Our practice to date has been to keep this information buried in ASSIST instead of conveying it in the Pathway descriptions, which seems to limit the usefulness of our web sites in service of making things seem simple, a misplaced priority in ACSCOTT's view.

The proposed Pathway will thus consist of the following courses:

- Calculus-based physics (full sequence with lab)
- Introductory Biology (full sequence with lab)
- Single-variable calculus (full sequence)
- General Chemistry (full sequence with lab)
- Introductory Statistics course
- Principles of Economics (microeconomics)
- One semester of Organic Chemistry

Students can prepare for every major in the UC system using this Pathway, and moreover, they can still take advantage of the Cal-GETC pattern for meeting general education requirements. As the sample study plan shows, they can do so with a need to defer only two GE courses. If the Senate acts on our proposal to allow additional deferrals, students interested in this major will have additional and much-needed flexibility, permitting them to take additional, complementary courses and to spread remaining GE courses over two years at UC, exactly what we allow four-year students to do. However, even if the Senate does not act, students following the accompanying academic plan will have met the seven-course pattern for UC eligibility, and can avail themselves of campus-based GE patterns, should they prefer additional preparation over completing Cal-GETC. We favor the CalGETC alternative, with additional deferrals as needed, because it frees the student's planning from adhering to individual, campus-based GE patterns, but the Pathway's value for major preparation does not depend on choice of GE pattern. Importantly, such choices are not dictated by rules such as those governing ADTs and are left to the student.

For this major, the notes accompanying the table are particularly important, given the relatively greater heterogeneity we found for Environmental Science majors, compared to some others. For instance, as the notes indicate, a Pathway without organic chemistry would meet the course requirements for transfer admission for only the Social Sciences emphasis in Berkeley's Environmental Science major; the Biology and Physics concentrations require one semester of organic chemistry in place of the courses in statistics and economics. For Social Sciences, CHEM 1B (already in the proposed Pathway) may substitute. We were reluctant to consider the other two concentrations as participating in this Pathway, since it meant listing organic chemistry as a requirement; we prefer to indicate that the course is there so that students interested in either of those concentrations will know to add this course to their preparation. At the risk of over-emphasizing what seems like an obvious policy recommendation to us, the student wishing to major in Environmental Science at Berkeley or UCLA can make room for organic chemistry by deferring courses required for Cal-GETC.

Riverside would allow substitution among the asterisked sequences, so we do not consider this campus as one requiring organic chemistry; we chose general chemistry to align better with the other majors. Students, however, ought to be aware of these different options, which our table facilitates.

Also worth emphasizing is that where community colleges have a two-semester calculus-based physics sequence, it is usually sufficient for the physics requirement. (That is, the physics doesn't have to be the top-of-the-line version used by engineers and physicists, but it does have to be calculus based.)

Finally, a few changes will be required in ASSIST, and have already been agreed to by the majors involved:

The Physics and Environ/Geog courses will not be required for admission to Los Angeles from Fall 2025.

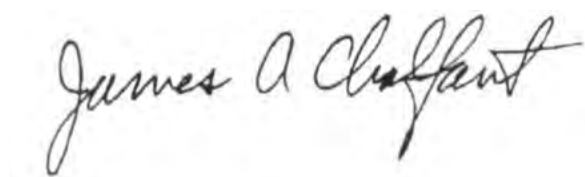
Merced accepts the full sequence C-ID PHYS 100-S or C-ID PHYS 105 and 110 in lieu of the physics courses.

San Diego has two other concentrations (Environmental Chemistry, Earth Sciences) in the program, but these require the physics sequence for STEM majors.

ENVS 1 and ENVS 2 can be taken at Santa Barbara during the summer. Students preparing for the Environmental Studies BS program should prioritize chemistry and biology and mathematics over physics.

Thank you for consideration of this proposed Pathway.

Sincerely,

A handwritten signature in black ink that reads "James A. Chalfant". The signature is written in a cursive style with a large, stylized 'J' and 'C'.

James A. Chalfant

Professor Emeritus, Agricultural and Resource Economics, Davis Campus, and
Chair, Academic Council Special Committee on Transfer Issues ([ACSCOTI](#)).



ACADEMIC COUNCIL SPECIAL COMMITTEE ON TRANSFER ISSUES (ACSCOTI)

James Chalfant, Chair

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May 22, 2024

Dear Jim,

The Academic Council's Special Committee on Transfer Issues (ACSCOTI) is pleased to recommend in favor of the creation of a new UC Transfer Pathway (UCTP) for Materials Science and Engineering. With this letter, we ask for the Academic Council's approval and to initiate the process of notification and creating a web-page description of the Pathway.

Like other engineering majors, there is no Transfer Model Curriculum (TMC) and hence no Associate Degrees for Transfer (ADT) for this major. The Pathway represents the only model for preparing for this major. Materials Science and Engineering now will become one of several new STEM Pathways, expanding considerably the range of options for students that will be guided by Pathways.

The proposed Pathway will consist of the following courses:

- Calculus-based physics (full sequence with lab)
- Single-variable calculus (full sequence)
- Multivariable Calculus
- Linear Algebra
- Differential Equations
- General Chemistry (full sequence with lab)
- One programming course
- Materials
- Statics

As we have done for other majors, ACSCOTI has prepared a table that shows the courses required for each major that will participate in this UCTP. You can see the table at <http://tinyurl.com/acscoti-tables>, where we have also included a sample academic plan, for the traditional two-year model at a community college. ACSCOTI continues to feel very strongly that the information in these tables, and the sample course plans, should be routinely provided to prospective students, and to any faculty or staff advisors seeking to understand UC's course and major requirements.

As the sample study plan shows, students can use the Pathway to complete their major preparation and also the seven-course pattern for transfer admission. We do not anticipate interest in trying to create a TMC, because the unit-cap constraint will be binding, so completing GE in order to earn an associate degree may

not be an issue. Students may wish to complete Cal-GETC all the same; however, this seems more likely for students who extend preparation to three or more years (not uncommon in engineering majors who begin at community colleges), and even then, it will not result in the student receiving an Associate degree. To achieve that outcome, the community colleges would need to create associate degrees based on our Pathway, outside the SB1440/AB928 model. ACSCOTI would welcome interest in creating such degrees, but our Pathway proposal does not depend on that occurring.

As you are of course aware, ACSCOTI still favors allowing students in this major to use Cal-GETC as their general-education pattern. If the Senate acts on our proposal to allow deferring additional courses, students interested in this major will have additional and much-needed flexibility, permitting them to spread remaining GE courses over two years after transfer to a UC campus, exactly what we allow four-year students to do. However, even if the Senate does not act, students following the accompanying academic plan will have met the seven-course pattern for UC eligibility, and can avail themselves of campus-based GE patterns. We favor the CalGETC alternative, with additional deferrals as needed, because it frees the student's planning from adhering to individual, campus-based GE patterns, but the Pathway's value for major preparation does not depend on choice of GE pattern. Importantly, such choices are not dictated by rules such as those governing ADTs and are left to the student.

As always, the notes accompanying our table are important. Those that rise to the level of calling for changes to ASSIST are show below:

Berkeley recommends that, if the recommended courses are not articulated, a course in statics and a course in computer programming be completed even if not articulated.

Berkeley Materials Science and Engineering will accept a programming course in any high-level programming language in lieu of ENGIN 7.

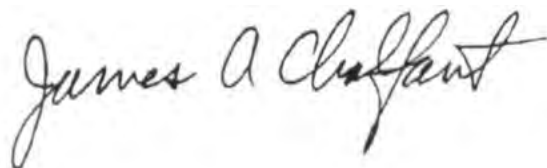
Riverside requires three of seven courses marked in our table be completed for admission. A GPA of 2.5 has to be obtained in the math courses and separately in the chemistry courses.

Davis requires either ENGR 35 or ENGR 17 to be completed before transfer.

Davis is in the process of changing the programming requirement to [ECH 60 or ECS 32A](#) and converting ENG 3 from an admission requirement (red in our table) to a major requirement (green).

Thank you for consideration of this proposed Pathway.

Sincerely,

A handwritten signature in black ink that reads "James A. Chalfant". The signature is written in a cursive, flowing style.

James A. Chalfant
Professor Emeritus, Agricultural and Resource Economics, Davis Campus, and
Chair, Academic Council Special Committee on Transfer Issues ([ACSCOTI](#)).



ACADEMIC COUNCIL SPECIAL COMMITTEE ON TRANSFER ISSUES (ACSCOTI)

James Chalfant, Chair

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March 11, 2024

Dear Jim,

Part of the Academic Council's Special Committee on Transfer Issues (ACSCOTI) charge is to review existing UC Transfer Pathways, and recommend updates based on consultation with faculty representing the majors that participate. The current intersegmental effort to try to establish new Transfer Model Curricula (TMCs) in certain STEM majors led us to consult with faculty representing various math, physics, and chemistry majors, respectively. We have identified updates to the UC Transfer Pathways that should be made. While all of the Pathways pages need additional material concerning advice to students about courses in the Pathway that are not required by certain majors, and at the same time, additional courses that are required by certain majors but not included in the Transfer Pathway, we do not discuss such courses in this letter since they do not represent changes in requirements for transfer admission. This reflects ACSCOTI's view that adhering as closely as possible to the strict interpretation that the Pathway itself is about admissions requirements and not all courses helpful in preparing for a major. The additional information still is needed, but that will obviously require a longer revision process that applies to every Transfer Pathway.

For the Transfer Pathway in Mathematics, the last requirement shown, to choose from one of four sequences, should be dropped from the set of requirements. We expect to add language indicating that meeting this requirement would be beneficial for various majors, but it is not an admissions requirement. All of the participating majors have agreed to delete this item from the Pathway courses.

For the Transfer Pathway in Physics, the Chemistry requirement should be removed. Again, all participating majors have agreed to delete this item from the Pathway courses.

For the Transfer Pathway in Chemistry, linear algebra should replace differential equations. Here, there is also accompanying text referring to completing linear algebra after transfer, which should be replaced with similar text for differential equations.

Why make these interim changes before more extensive revisions? First, it is timely to update the course expectations because one major has told us that their campus admissions office refers to the Pathway as the official statement of requirements, so updating is important for admissions practice to reflect current requirements. In addition, the draft TMCs that are expected to circulate to all majors in the CSU, CCC, and UC systems are likely to raise the visibility of the Pathway web sites, as the only sources for information about Pathway requirements. It would add a lot of unnecessary confusion to reviews of new TMCs if the Pathway descriptions remain inconsistent with the latest thinking about these Pathways.

Accompanying changes that will be needed in ASSIST, to be conveyed to the campus admissions officers, are shown below:

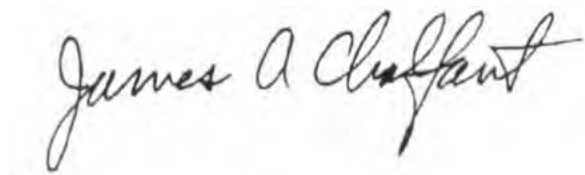
For the various emphases in Applied Math at Merced, MATH 23 and 24 become requirements for transfer admission instead of PHYS 8, 8L, 9, and 9L.

For Physics at Santa Barbara, admissions requirements need to be updated to reflect the removal of Chemistry.

For Chemistry at Santa Barbara, admissions requirements for the BS degree should switch from differential equations to linear algebra.

Thanks very much.

Sincerely,

A handwritten signature in black ink that reads "James A. Chalfant". The signature is written in a cursive, flowing style.

James A. Chalfant
Professor Emeritus, Agricultural and Resource Economics, Davis Campus, and
Chair, Academic Council Special Committee on Transfer Issues ([ACSCOTI](#)).