CONSULTATION BRIEF

SEOS Year 2 Computing Revisions

Draft for faculty feedback, School of Earth and Ocean Sciences, University of Victoria

INITIALLY PREPARED

April 29, 2026

LAST UPDATED

June 16, 2026

STATUS

Consultation draft. Not a formal Calendar motion, and there are no specific plans yet for when this will move forward. Consensus for changes this large is likely to be challenging; compromises or new solutions will be easier to find through broad engagement.

PURPOSE

Clarify the proposed package, program-specific effects, and decisions that still require faculty consultation.

Basis: The Year 2 revision began as a December 2024 faculty retreat action item and was developed through the 2025-2026 academic year. Earlier versions have been discussed at undergraduate committee and department meetings. This brief focuses on the remaining implementation choices and program-specific complications.

Summary

Computing preparation is split across pieces of **EOS210** and **EOS261**, course roles overlap, contact hours are high in several programs, and later preparation for **EOS325**, **EOS340**, and upper-level modelling work is harder to explain than it should be.

CORE PACKAGE

EOS230 becomes the main SEOS Year 2 computing and data-analysis route; **CSC110** remains the other recognized programming entry point.

COURSE CHANGES

EOS210 and **EOS230**/**GEOG230** run as **3-0-0**, **EOS240** access broadens to all EOS programs, **EOS261** leaves Year 2, and **EOS361** becomes the named third-year Climate Science successor.

OPEN DECISIONS

Chemistry and Ocean Sciences, Physical Geography and Earth and Ocean Sciences, **EOS240** delivery, **EOS230** learning outcomes, and **EOS361** scope still require faculty consultation.

One high-level goal is to standardize the progression of computing across our programs: first-entry programming through one of **CSC110** or **EOS230**, second-level modelling or computational work through **EOS325** or **MATH/PHYS248**, and third-level applications in various fourth-year courses.

The prerequisite cleanup is the central constraint. If **EOS325** only accepts **EOS230** or **CSC110**, then Chemistry and Ocean Sciences and Physical Geography and Earth and Ocean Sciences need explicit pathway decisions. These should be treated as structural curriculum choices, not advising workarounds.

Contents

SECTION 1

Problem

The Year 2 issue is not a single course substitution. It is a linked curriculum problem involving computing, course identity, workload, and prerequisite preparation across several SEOS-related programs.

- Computing is fragmented between the **`EOS210`** lab and the **`EOS261`** tutorial instead of delivered through a clear Year 2 course.
- Course roles are not cleanly separated, especially across **`EOS261`**, **`EOS240`**, **`EOS321`**, and **`EOS460`**.
- Our programs already carry heavy Year 2 contact hours, so any improvement must avoid simply adding more scheduled time.
- Current prerequisite patterns make later preparation for **`EOS325`**, and upper-level modelling and climate work less explicit than it should be.
- The computing progression across programs is not standardized: students can reach programming, modelling, and fourth-year computational applications through routes that are hard to compare across programs.

The proposal is meant to clarify roles, reduce duplication, and make course progressions easier to follow. It is not meant to force every program into the same template.

SECTION 2

Proposal Package

Read the proposal as a package. The individual edits only work if computing preparation, course roles, contact hours, and downstream prerequisites are handled together.

AREA	PROPOSED CHANGE	RATIONALE	STATUS
Year 2 computing	**EOS230** becomes the main SEOS Year 2 computing and environmental data-analysis entry point. **CSC110** remains the other recognized first programming route.	Replaces fragmented preparation with a named computing route and supports a standard progression from programming to modelling to fourth-year computational applications. See **Figure 2**.	Working direction
EOS230/**GEOG230** **delivery**	Remove the lab/tutorial component and run the course as **3-0-0**.	Reduces scheduled Year 2 time while keeping the course as the computing entry point. See **Figure 2**.	Implementation option
EOS210	Remove the lab/tutorial component and run the course as **3-0-0**.	Computing moves to a clearer Year 2 entry point, and contact hours decrease.	Working direction
EOS240 **access**	Reduce prerequisites to **CHEM102** only.	Broadens access for all EOS programs. **EOS240** is currently available only to programs with **EOS205** mineralogy, so the prerequisite scope change is needed before the course can serve the wider Year 2 role. See **Figure 3**.	Working direction

AREA	PROPOSED CHANGE	RATIONALE	STATUS
EOS240 delivery	Consider moving from **3-3-0** to **3-0-0**.	Would reduce Year 2 contact hours, but requires a course-design decision. See **Figure 3** for the access assumption.	Implementation option
EOS261	Remove the course from Year 2.	Clears space in Year 2. Advanced climate-system material moves to year 3. See **Figure 1**.	Working direction
EOS361	Create a third-year Climate Science successor, provisionally *Climate-System Science*, with prerequisites of one of **EOS230** or **CSC110**, **EOS240**, and one of **EOS220**, **EOS340**, or **GEOG272**.	Gives advanced climate-system material an explicit upper-level home. See **Figure 1**.	Working direction
EOS325 prerequisite	Revise the computing prerequisite to one of **EOS230** or **CSC110**.	Makes the Year 2 computing route feed directly into later modelling work. See **Figure 4**.	Working direction
EOS340 prerequisite	On the non-physics route, require one of **MATH202** or **MATH204** plus one of **EOS230** or **CSC110**.	Cleans up the non-physics computational gateway without dropping the calculus requirement. See **Figure 5**.	Working direction

The two physics-based programs are not part of the main redesign because they already rely on **CSC110**. The package is primarily for programs where Year 2 computing is fragmented or delayed.

The intended computing sequence is: one of **CSC110** or **EOS230** as the first programming experience, then **EOS325** or **MATH/PHYS248** as the second-level modelling or computational course, then fourth-year courses that use those skills in disciplinary contexts.

SECTION 3

Program Effects and Prerequisites

Not every program receives the same treatment. The main distinctions are between the direct **EOS261**-to-**EOS230** cases, the Climate Science case, the Physical Geography and Earth and Ocean Sciences design choice, and the Chemistry and Ocean Sciences recommendation.

PROGRAM	CURRENT SITUATION	PROPOSED TREATMENT	UNRESOLVED ISSUE
Earth Sciences	**EOS261** currently sits in Year 2.	Replace **EOS261** with **EOS230**; apply the wider prerequisite cleanup for **EOS240**, **EOS325**, and **EOS340**. See Figure 6.	No program-specific issue identified.
Biology and Earth Sciences	**EOS261** currently sits in Year 2.	Replace **EOS261** with **EOS230**; apply the wider prerequisite cleanup for **EOS240**, **EOS325**, and **EOS340**. See Figure 7.	No program-specific issue identified.
Chemistry and Earth Sciences	**EOS261** currently sits in Year 2.	Replace **EOS261** with **EOS230**; apply the wider prerequisite cleanup for **EOS240**, **EOS325**, and **EOS340**. See Figure 8.	No program-specific issue identified.
Physical Geography and Earth and Ocean Sciences	The current program does not contain **EOS261**. Year 2 is already	Three options remain: replace **CHEM245** with **EOS230**; use the remaining 1.5 Year 2	The favoured option requires Geography follow-through: **GEOG319**,

PROGRAM	CURRENT SITUATION	PROPOSED TREATMENT	UNRESOLVED ISSUE
	crowded, so adding **EOS230**/**GEOG230** requires a real program-design choice rather than a simple replacement.	elective unit for **EOS230**; or replace the Year 2 statistics-options block with **EOS230**. The undergraduate committee is against the first option: dropping **CHEM245** from the combined Geography and Earth and Ocean Sciences pathway while keeping it in the Earth Sciences major could push students away from the Earth Sciences major. The third option is favoured because it gives students the programming route while preserving the rest of the Year 2 structure. See **Figure 9**.	**GEOG322**, **GEOG328**, and **GEOG329** would need to accept **EOS230** alongside **GEOG226** or 200-level STAT.
Climate Science, Physical Climate Science stream	**EOS230** is already present in the approved structure.	Remove **EOS261** from Year 2, bring **EOS240** into Year 2, and use **EOS361** as the named third-year successor to the advanced climate-system role. See **Figure 10**.	The main open issues are **EOS240** delivery mode and the final scope of **EOS361**.
Chemistry and Ocean Sciences	The current structure does not use **EOS261**, and years 1 and 2 are designed currently to match the Chemistry program.	Recommended change: add a one-of requirement, **CSC110** or **EOS230**, to the program. This keeps years 1 and 2 almost exactly aligned with Chemistry while making the computing progression available. See **Figure 11**.	The current program uses EOS314 as the entry point into EOS 325, which preserves the year 1 and 2 match to Chemistry, but does not provide the same progression of

PROGRAM	CURRENT SITUATION	PROPOSED TREATMENT	UNRESOLVED ISSUE
			computing skills that other programs will offer.
Physics and Earth Sciences (Geophysics); Physics and Ocean-Atmosphere Sciences	These programs already rely on CSC110.	No substantive Year 2 change in this proposal.	None.

Prerequisite Pathway Check

The table checks proposed prerequisite pathways against named courses in each affected program. Permission-of-instructor or permission-of-school clauses are not treated as solving a prerequisite trap; students should be able to reach each named required course through the program's own required curriculum.

PROGRAM OR GROUP	CHANGED REQUIRED COURSES CHECKED	RESULT	DECISION OR VERIFICATION NEEDED
Earth Sciences	EOS230, EOS240, EOS325, EOS340	No new trap found under the proposed assumptions. EOS230, CHEM102, the relevant MATH courses, and the relevant PHYS pathways are all present in the named program structure.	None.
Biology and Earth Sciences	EOS230, EOS240, EOS325	No new trap found. The proposed EOS230 route replaces the current EOS261 computing route into EOS325.	None.
Chemistry and Earth Sciences	EOS230, EOS240, EOS325	No new trap found. The program already contains the chemistry, math,	None.

PROGRAM OR GROUP	CHANGED REQUIRED COURSES CHECKED	RESULT	DECISION OR VERIFICATION NEEDED
		physics, and Earth-science prerequisites needed for the proposed route.	
Physical Geography and Earth and Ocean Sciences	EOS230, EOS240, EOS325, EOS340	No trap if EOS230 is added. The favoured route replaces the current one-of statistics block with EOS230, which preserves the remaining elective space and supplies the computing preparation needed for the proposed EOS325/EOS340 prerequisites.	Confirm whether Geography will add EOS230 to the statistics prerequisite options for GEOG319, GEOG322, GEOG328, and GEOG329.
Climate Science, Physical Climate Science stream	EOS230, EOS240, EOS325, EOS340, EOS361	No trap in the proposal. EOS230 is already named in Year 2, CHEM102 supports the proposed EOS240 entry point, and EOS361 has reachable pathways through EOS220, EOS340, or GEOG272.	Confirm the final scope and calendar wording for EOS361.

PROGRAM OR GROUP	CHANGED REQUIRED COURSES CHECKED	RESULT	DECISION OR VERIFICATION NEEDED
Chemistry and Ocean Sciences	EOS325, EOS340, and the recommended one-of CSC110 or EOS230	No trap if the program adds one of CSC110 or EOS230. The CSC110 route is directly viable, and students who want the EOS route can elect the background needed for EOS230.	Place the one-of requirement intentionally so the program almost keeps its pure Year 1 and 2 Chemistry alignment while enabling the same computing progression used elsewhere.
Physics-based programs	EOS325/EOS340 cleanup where relevant	No trap identified. These programs already use CSC110 as their computing path.	None.

*Note: Chemistry and Ocean Sciences should be handled through intentional pedagogical choices that maximize the quality of the program for students. The program has had 26 total students: 22 took **EOS110** or **EOS130**, and 3 of the remaining 4 took **EOS120**. The recommendation is to add one of **CSC110** or **EOS230** to the program. That keeps years 1 and 2 almost exactly the same as Chemistry, enables the planned computing progression, and avoids needing named **EOS110**/EOS120/**EOS130** prerequisites for **EOS230** because **CSC110** is a viable option while the EOS route remains available by student choice.*

SECTION 4

Contact Hours

Contact hours are calculated from the SEOS Curriculum Atlas. The proposal column assumes **EOS210** and **EOS230**/**GEOG230** run as **3-0-0**. The final column shows the additional effect if **EOS240** also moves from **3-3-0** to **3-0-0**.

Program	Current Year 2	Proposed Year 2	Proposed Year 2 if EOS240 becomes 3-0-0
Earth Sciences	24-29 hrs/wk/term	22-27 hrs/wk/term Lower by 2	20.5-25.5 hrs/wk/term Lower by 3.5
Biology and Earth Sciences	26.5-28.5 hrs/wk/term	25.5-27.5 hrs/wk/term Lower by 1	24-26 hrs/wk/term Lower by 2.5
Chemistry and Earth Sciences	26-28 hrs/wk/term	25-27 hrs/wk/term Lower by 1	23.5-25.5 hrs/wk/term Lower by 2.5
Physical Geography and Earth and Ocean Sciences	23.5-27.5 hrs/wk/term	22.5-26.5 hrs/wk/term Lower by 1	21-25 hrs/wk/term Lower by 2.5
Climate Science, Physical Climate Science stream	21.5-25 hrs/wk/term	21-24.5 hrs/wk/term Lower by 0.5	19.5-23 hrs/wk/term Lower by 2
Chemistry and Ocean Sciences	21-27.5 hrs/wk/term	Route-dependent One-of CSC110/EOS230 will increase contact hours.	Route-dependent No EOS240 effect
Physics and Earth Sciences (Geophysics)	25 hrs/wk/term	25 hrs/wk/term No change	25 hrs/wk/term No EOS240 effect
Physics and Ocean-Atmosphere Sciences	21.5 hrs/wk/term	21.5 hrs/wk/term No change	21.5 hrs/wk/term No EOS240 effect

Takeaway: most affected programs decrease modestly under the working package, and the reductions are larger if **EOS240** becomes **3-0-0**. Chemistry and Ocean Sciences needs a separate placement check for the recommended one-of **CSC110**/**EOS230** requirement. The physics-based programs do not change.

SECTION 5

Course Notes

EOS230

EOS230 is the proposed SEOS Year 2 computing route. Its role is to replace fragmented preparation with one course in programming, data analysis, visualization, and quantitative reasoning using Earth, ocean, atmosphere, and environmental datasets.

SEOS should define the learning outcomes it needs from this course while consulting Geography. If **EOS230** is to feed **EOS325** and later quantitative work, the School should codevelop the course content and outcomes rather than treating the course as a simple slot replacement. See **Figure 2** and **Figure 4**.

The current **EOS230**/**GEOG230** entry condition also matters. It requires 100-level MATH and one of **EOS110**, **EOS130**, **GEOG103**, or **GEOG130**. That is reachable in the direct-replacement programs and in Climate Science. For Chemistry and Ocean Sciences, adding a one-of **CSC110** or **EOS230** requirement makes **CSC110** a viable route while still allowing students to elect the EOS-specific path.

EOS240

EOS240 should be treated as a shared foundation across Earth, Ocean, and Atmospheric sciences. It already serves most SEOS programs, and this proposal would add it to Climate Science. Its objectives therefore need to support solid-Earth, environmental geochemistry, ocean, climate, biogeochemistry, geography-adjacent, and modelling pathways.

The prerequisite change is necessary because **EOS240** is currently available only to programs that include mineralogy through **EOS205**. Reducing the entry condition to **CHEM102** broadens access so all EOS programs can use the course.

The current course description already uses an Earth-system frame: thermodynamics, equilibrium, mass balance, oceans, atmosphere, and solid Earth. Consultation should focus on whether that frame is broad enough for the expanded role, and whether modest learning-objective revisions are needed. See **Figure 3**.

EOS361

EOS361, provisionally titled *Climate-System Science*, is the proposed third-year successor to the advanced climate-system role now associated with **EOS261**. It should carry material that should not remain in Year 2 after **EOS240** and **EOS230** take clearer foundation roles. The working prerequisite structure is one of **EOS230** or **CSC110**, **EOS240**, and one of **EOS220**, **EOS340**, or **GEOG272**. An recommended future action item is to identify which programs can fit **EOS361** as a required or optional course, and which later courses may use it as a prerequisite. See **Figure 1**.

SECTION 6

Atlas Mockups

The Atlas figures compare the current approved structure with local proposal mockups. They are support material for the curriculum argument, not a separate proposal.

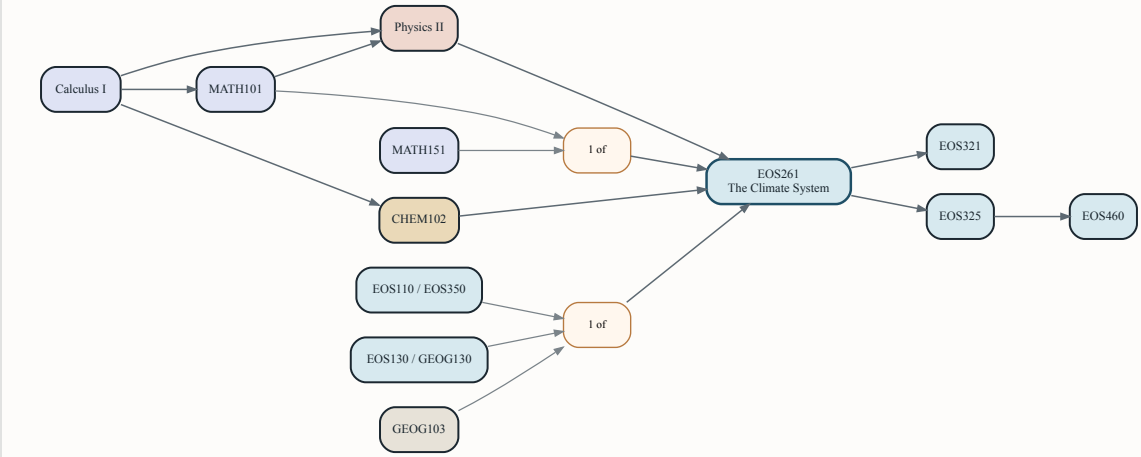
Graph labels are consistent: **ADDED** marks a course added to a program, **REMOVED** marks a course removed from a program, **P-REQ** marks a changed prerequisite pattern, and **NEW** marks a newly proposed course. Select any graph to inspect it in the viewer. Course nodes open the **Curriculum Atlas** where a course page exists; proposed **EOS361** carries hover context but no Atlas page yet.

The proposal mockups model **EOS240** with **CHEM102** only, **EOS325** with one of **EOS230** or **CSC110**, and the non-physics route into **EOS340** as one of **MATH202** or **MATH204** plus one of **EOS230** or **CSC110**.

Course-Level Comparisons

These figures isolate the proposal-affected courses so that changes in course role can be distinguished from changes in prerequisite structure.

CURRENT APPROVED STRUCTURE



PROPOSAL MOCKUP

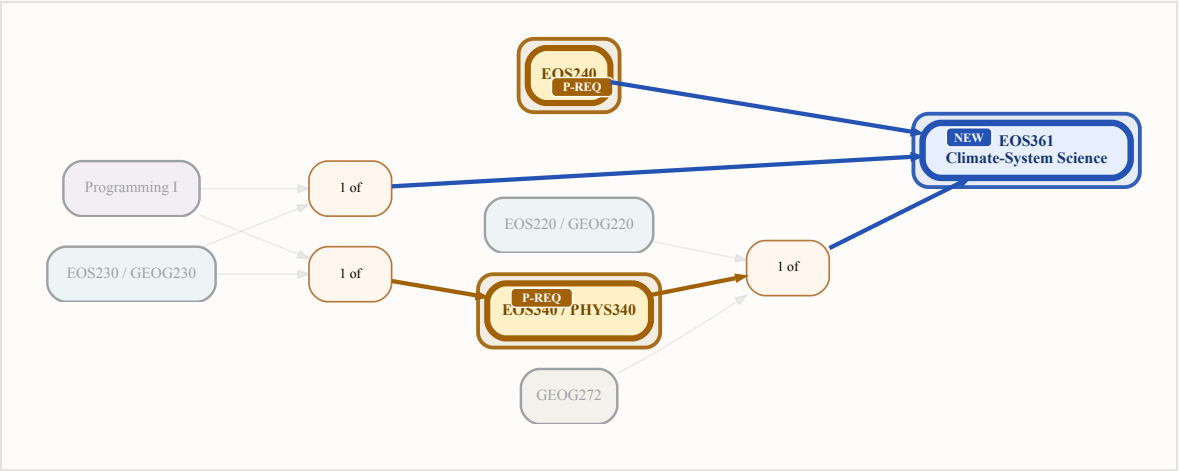
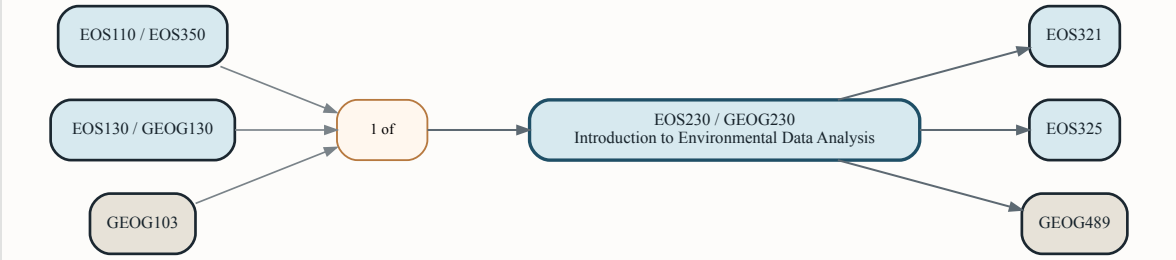


Figure 1. The advanced climate-system role moves from Year 2 **EOS261** to proposed third-year **EOS361**.

CURRENT APPROVED STRUCTURE



PROPOSAL MOCKUP

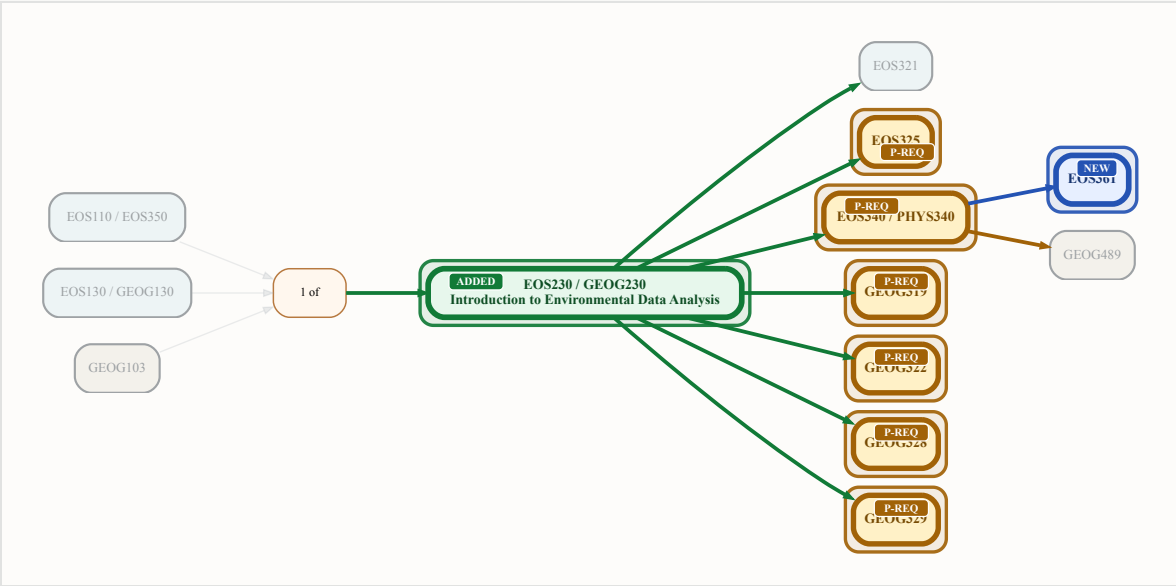
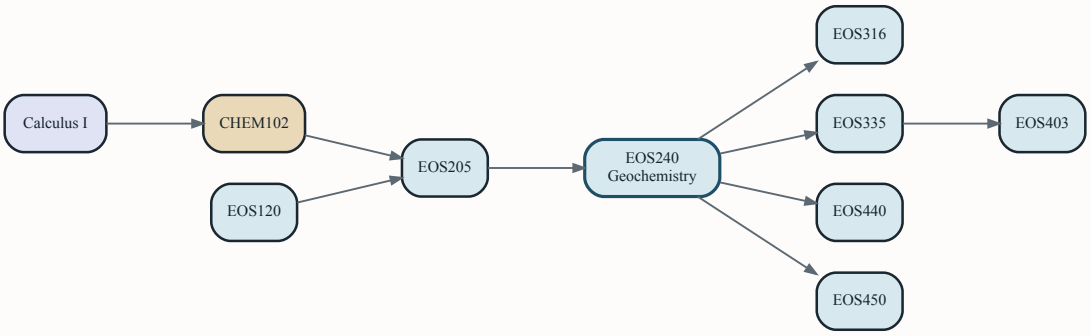


Figure 2. **EOS230** becomes the named computing route feeding later quantitative courses.

CURRENT APPROVED STRUCTURE



PROPOSAL MOCKUP

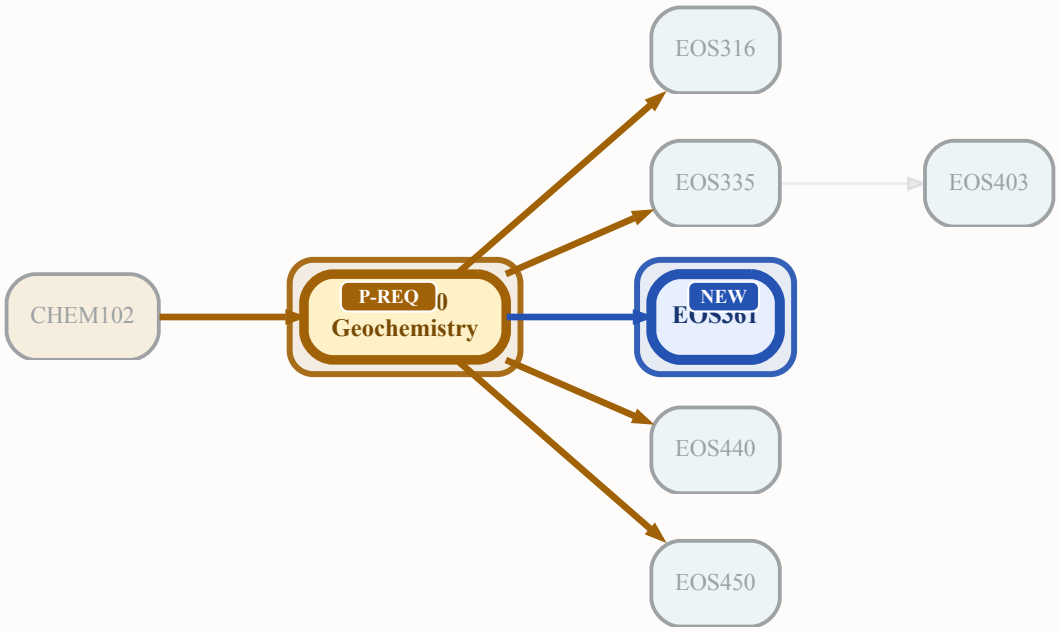
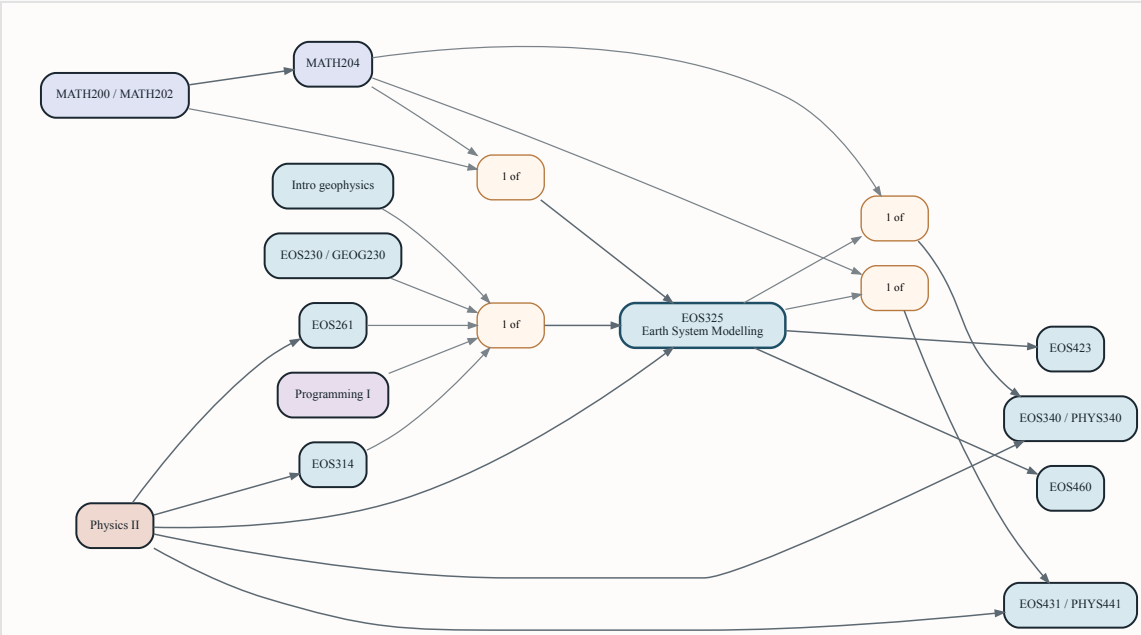


Figure 3. **EOS240** is modelled with broader access through **CHEM102** so it can serve all EOS programs, not only programs with **EOS205**.

CURRENT APPROVED STRUCTURE



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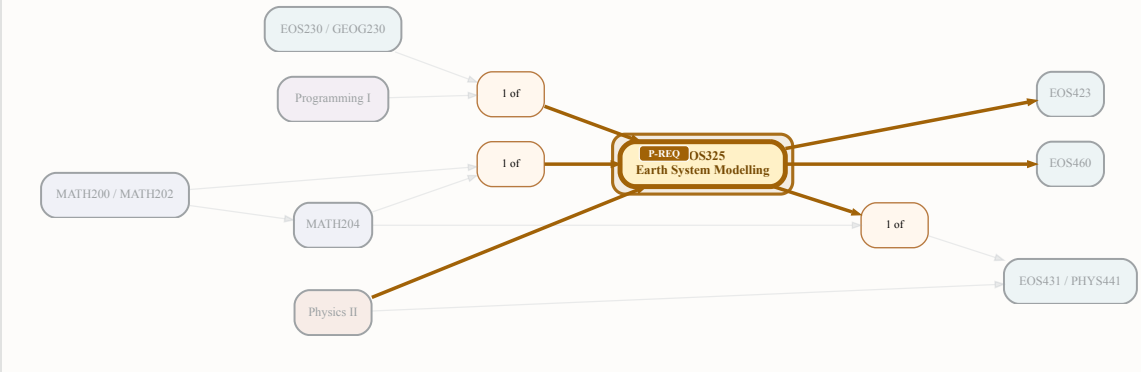
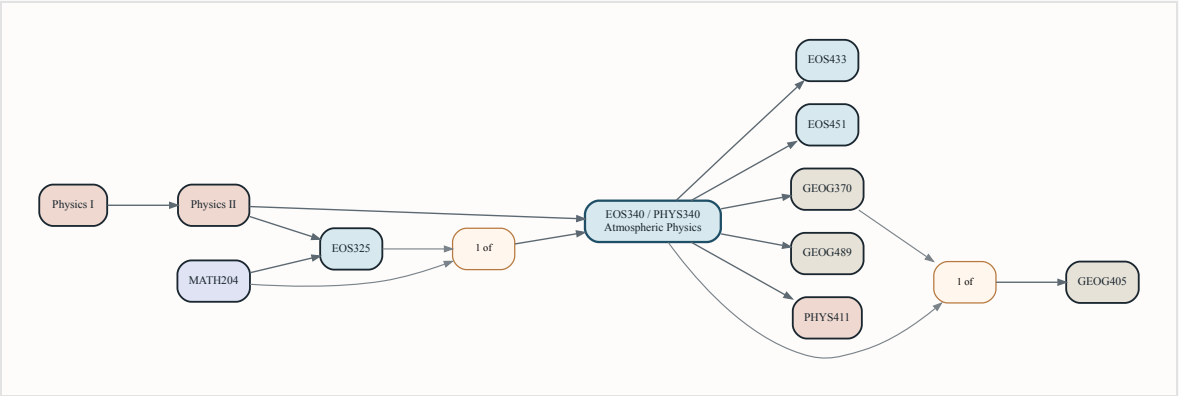


Figure 4. **EOS325** is modelled with the cleaned-up computing prerequisite route.

CURRENT APPROVED STRUCTURE



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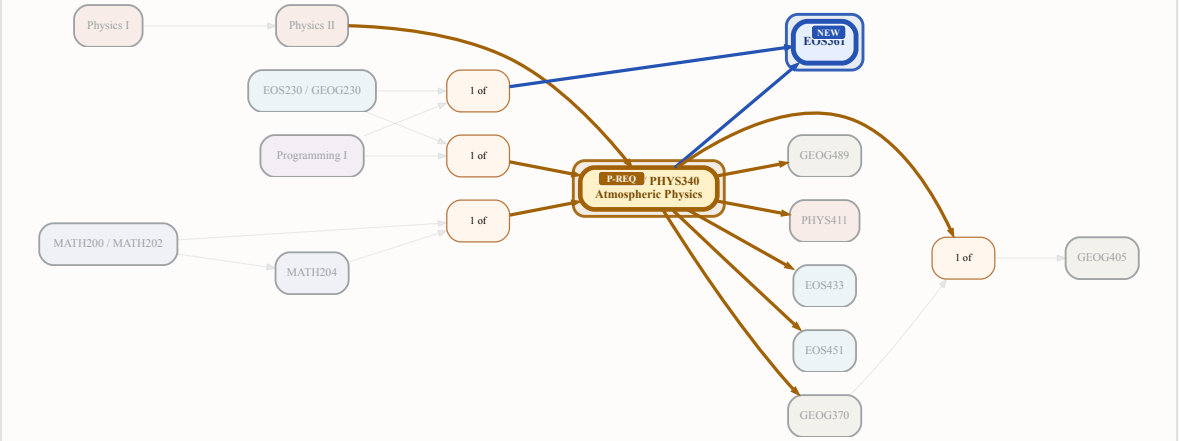
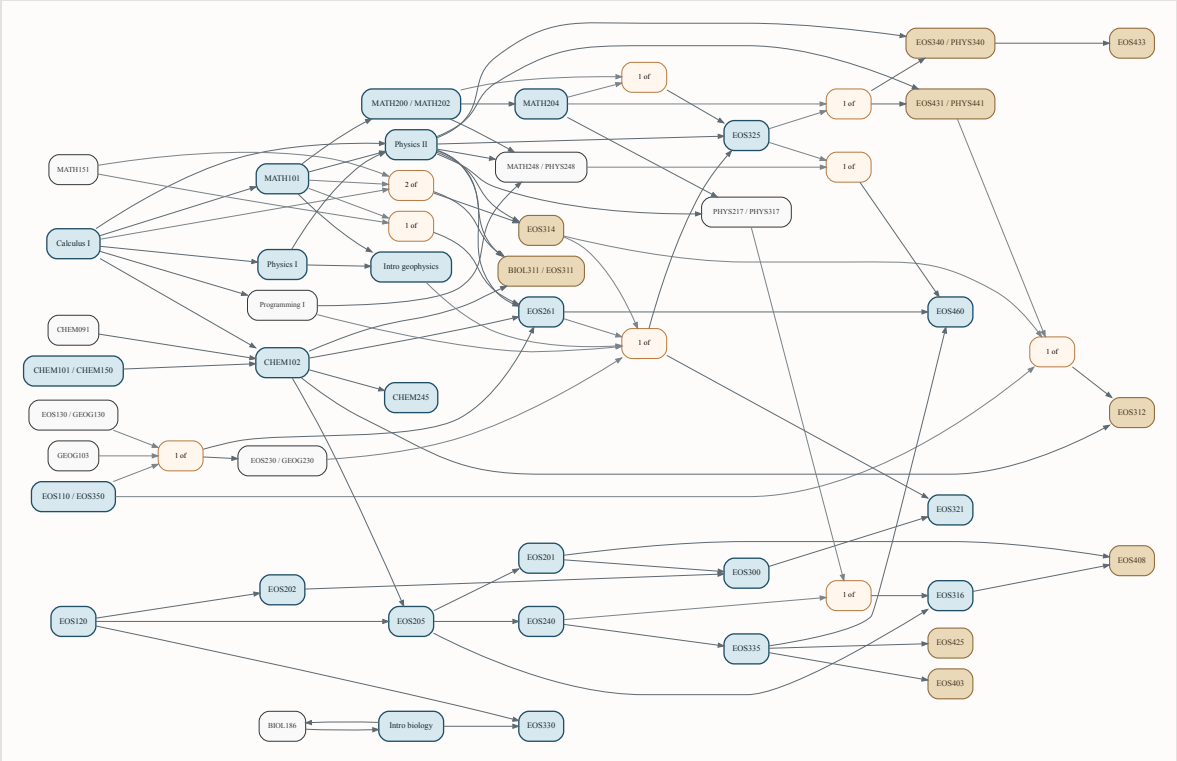


Figure 5. The non-physics route into **EOS340** is modelled as one of **MATH202** or **MATH204** plus the revised computing route.

Program-Level Comparisons

These figures show how the proposed changes affect programs differently.

CURRENT APPROVED STRUCTURE



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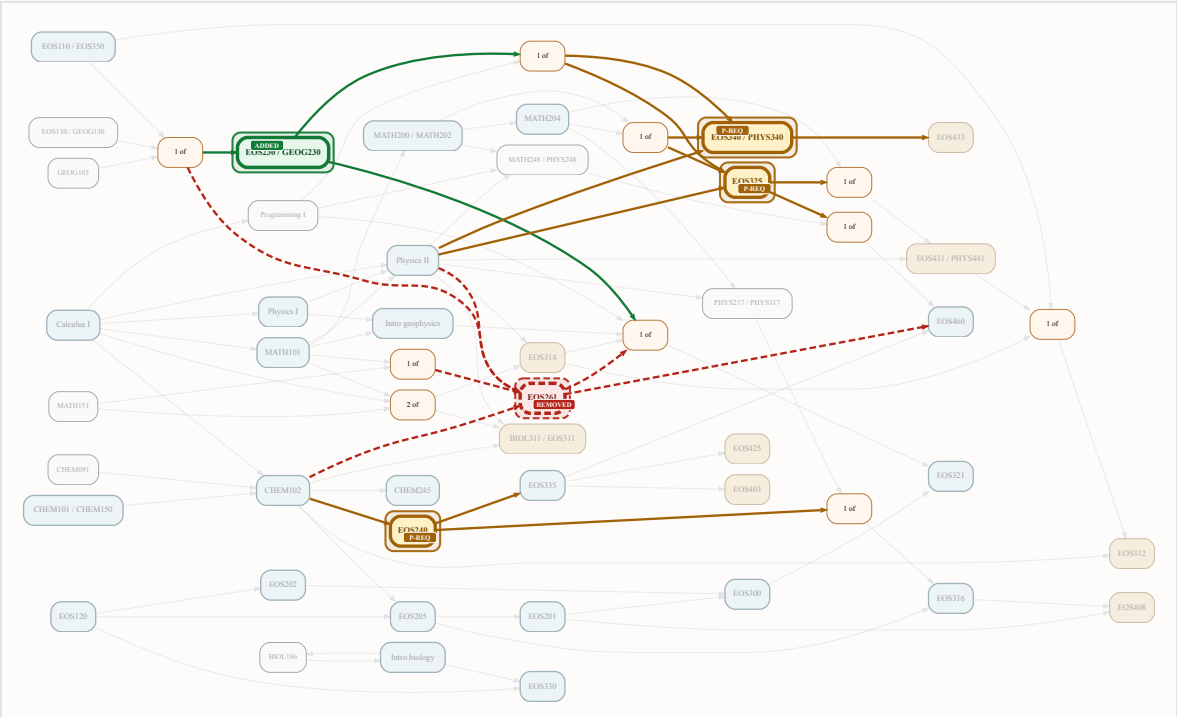
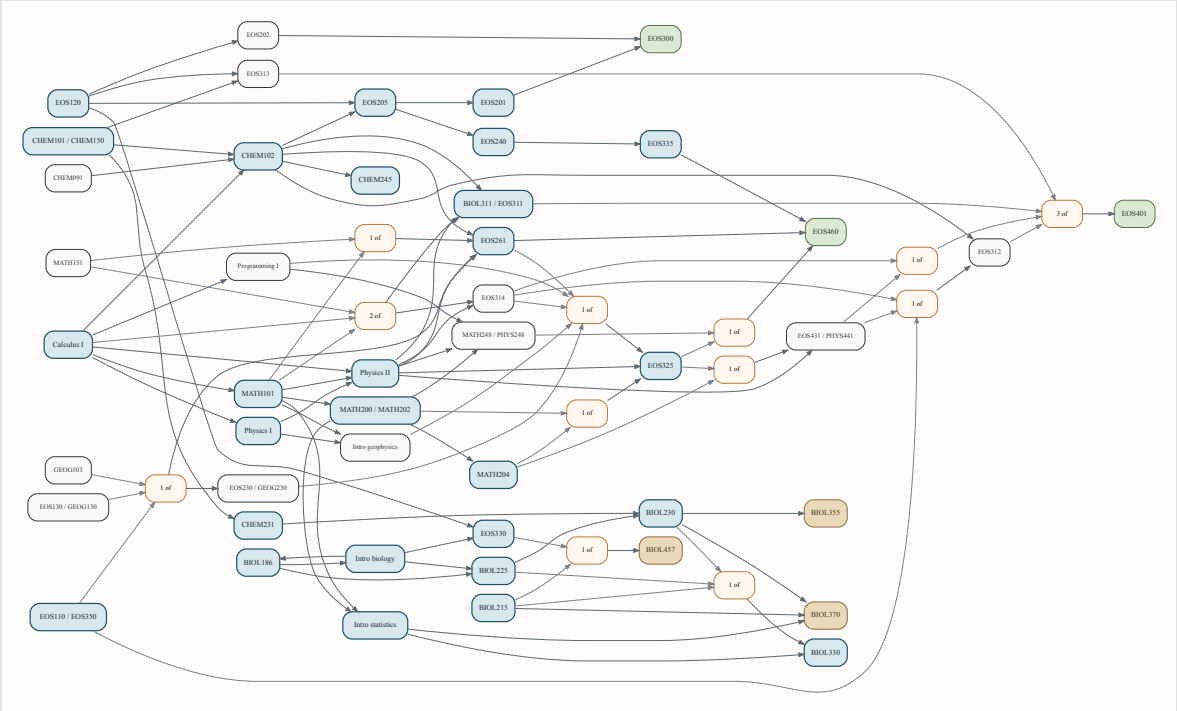


Figure 6. Earth Sciences shows the direct **EOS261**-to-**EOS230** replacement case.

CURRENT APPROVED STRUCTURE



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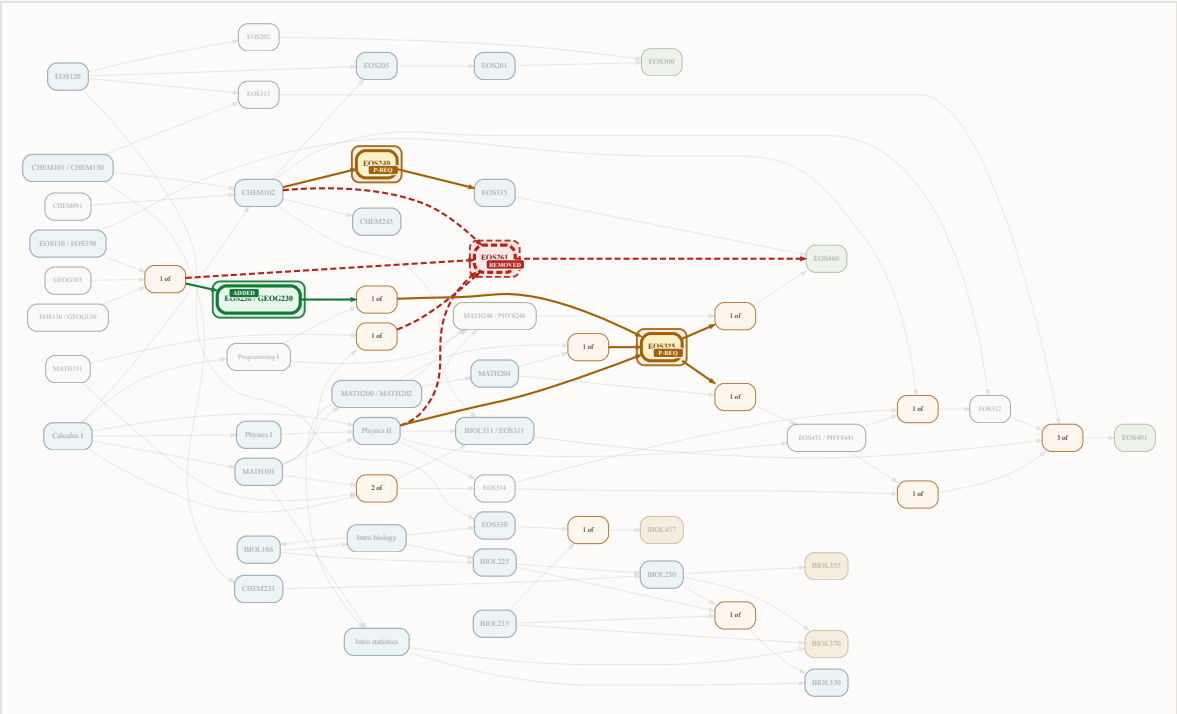
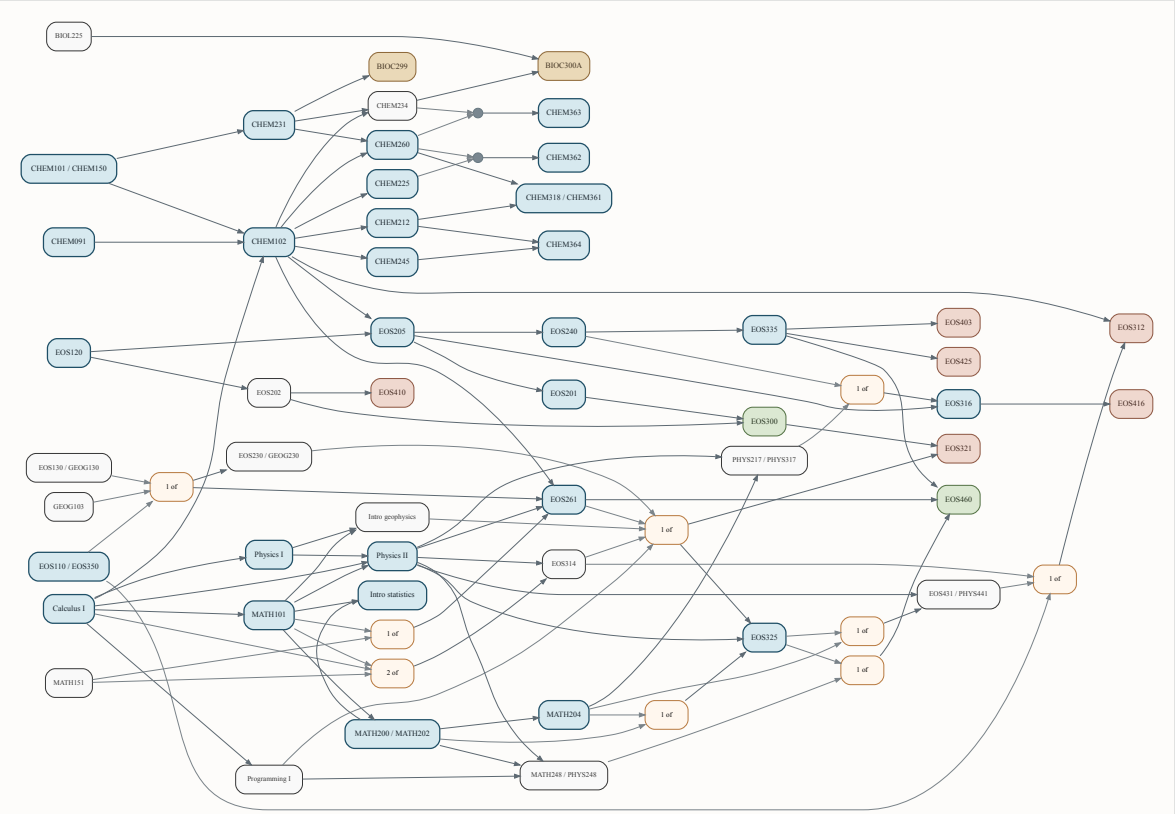


Figure 7. Biology and Earth Sciences follows the same direct replacement pattern.

CURRENT APPROVED STRUCTURE



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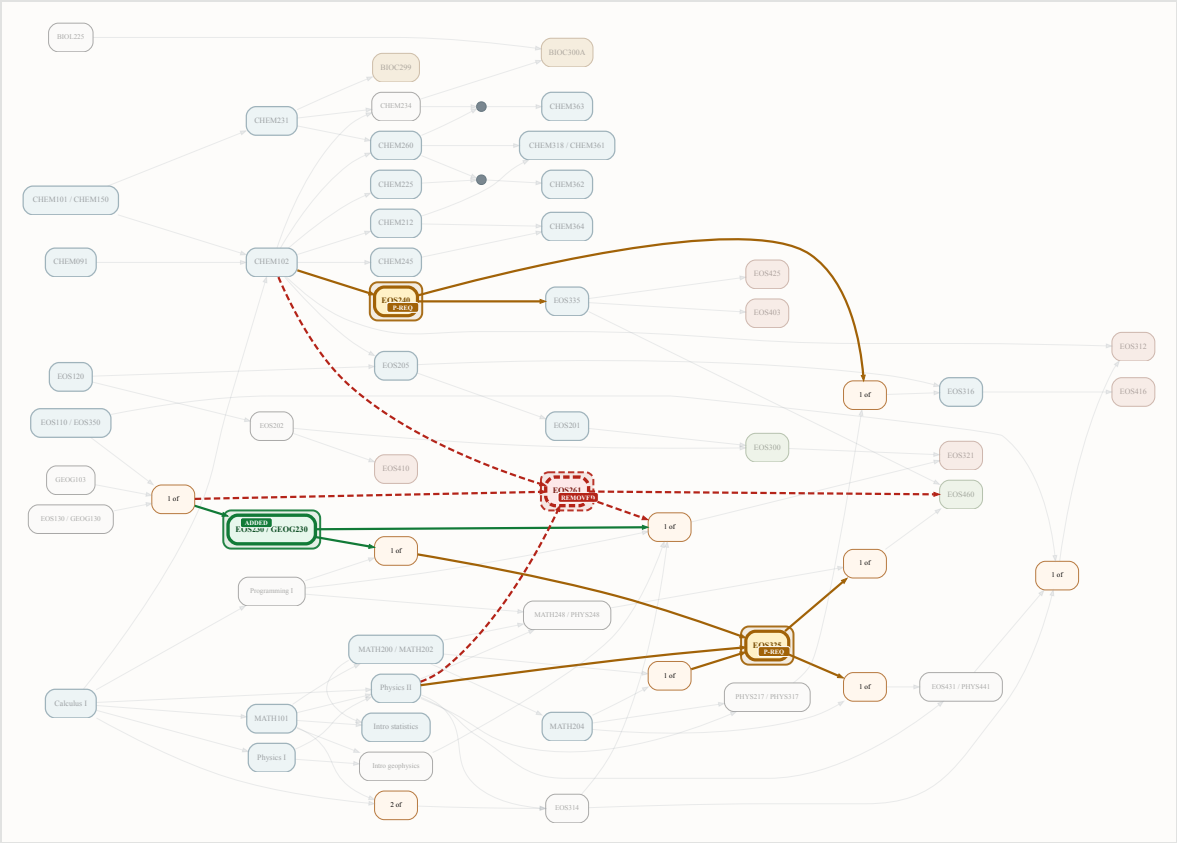
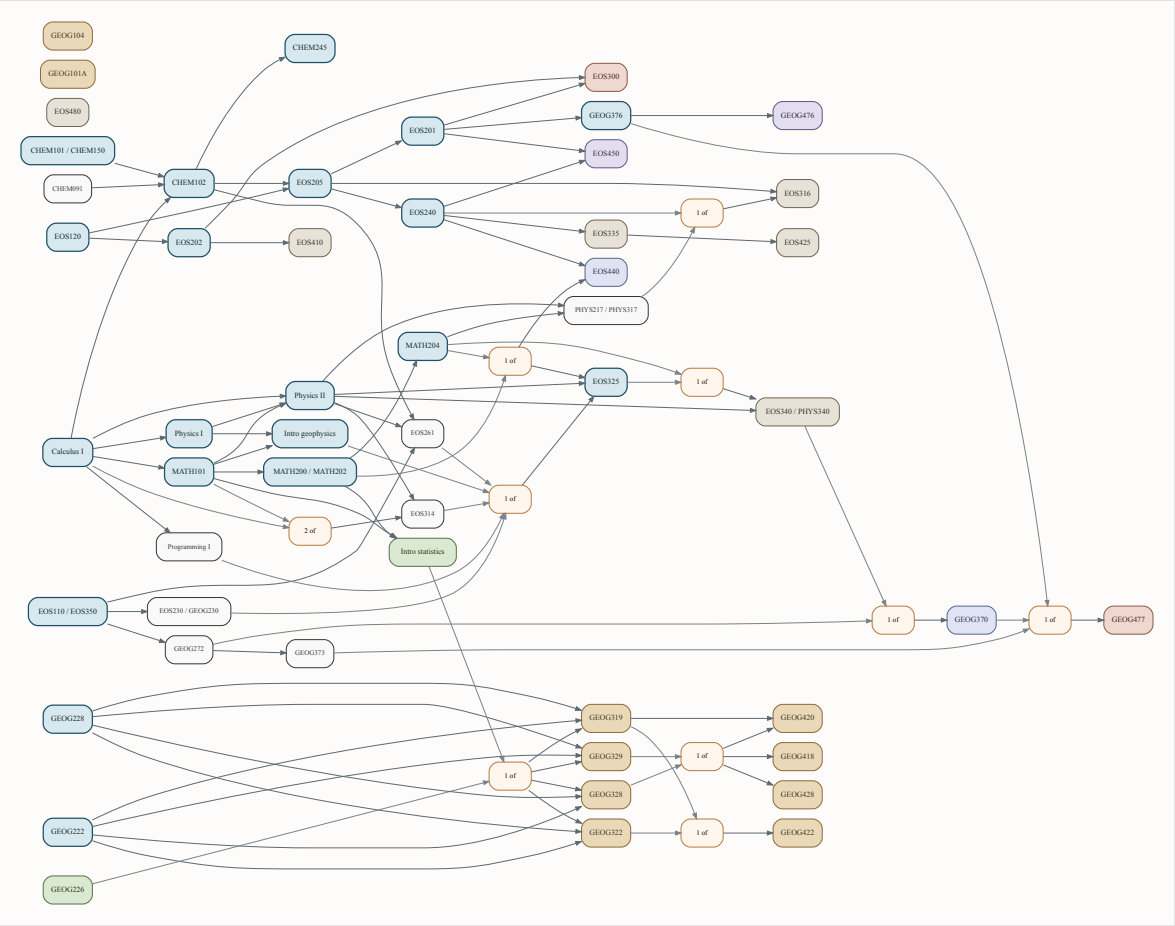


Figure 8. Chemistry and Earth Sciences also follows the direct replacement pattern.

CURRENT APPROVED STRUCTURE



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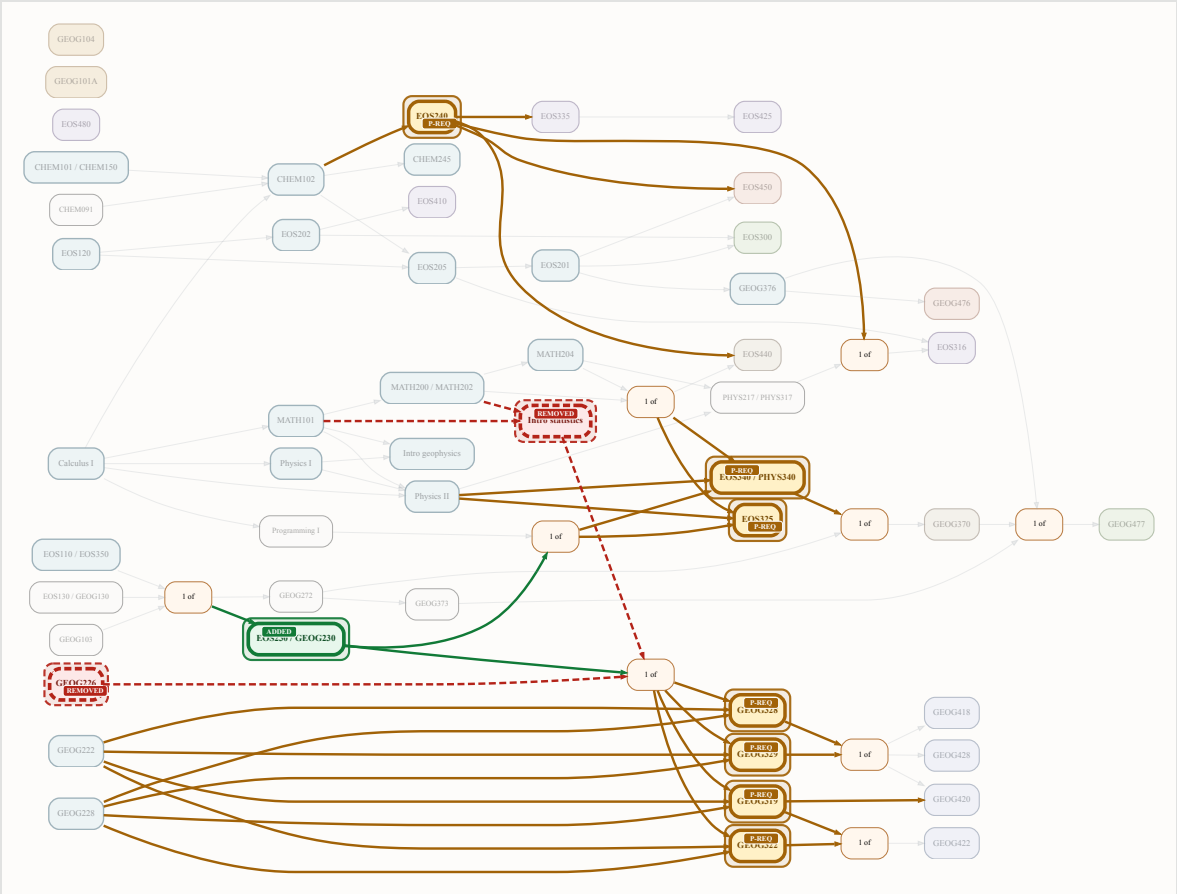
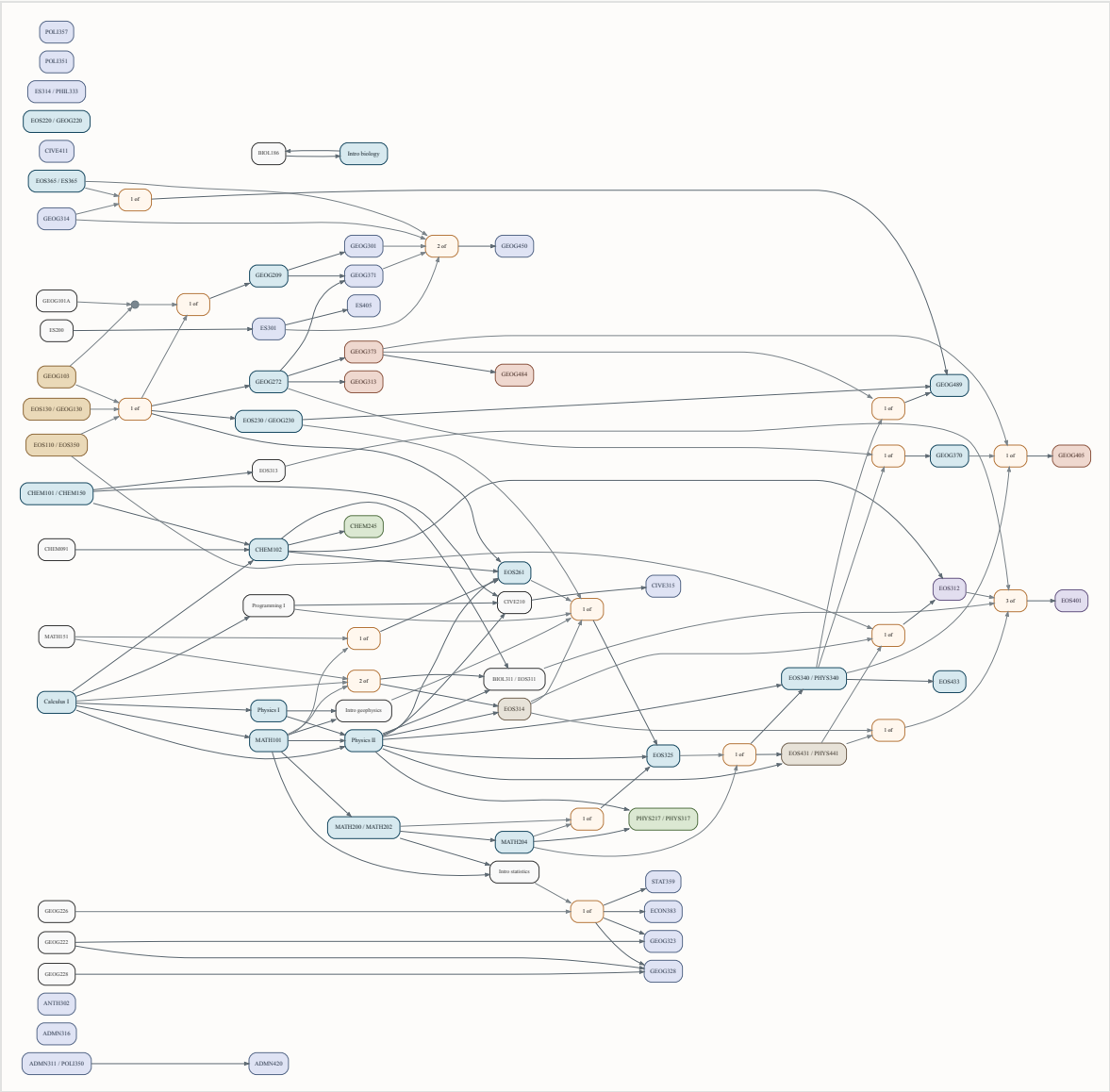


Figure 9. **Physical Geography and Earth and Ocean Sciences** illustrates the favoured option: replace the Year 2 statistics-options block with **`EOS230`** and add **`EOS230`** to the relevant Geography quantitative prerequisite lists.

CURRENT APPROVED STRUCTURE



PROPOSAL MOCKUP

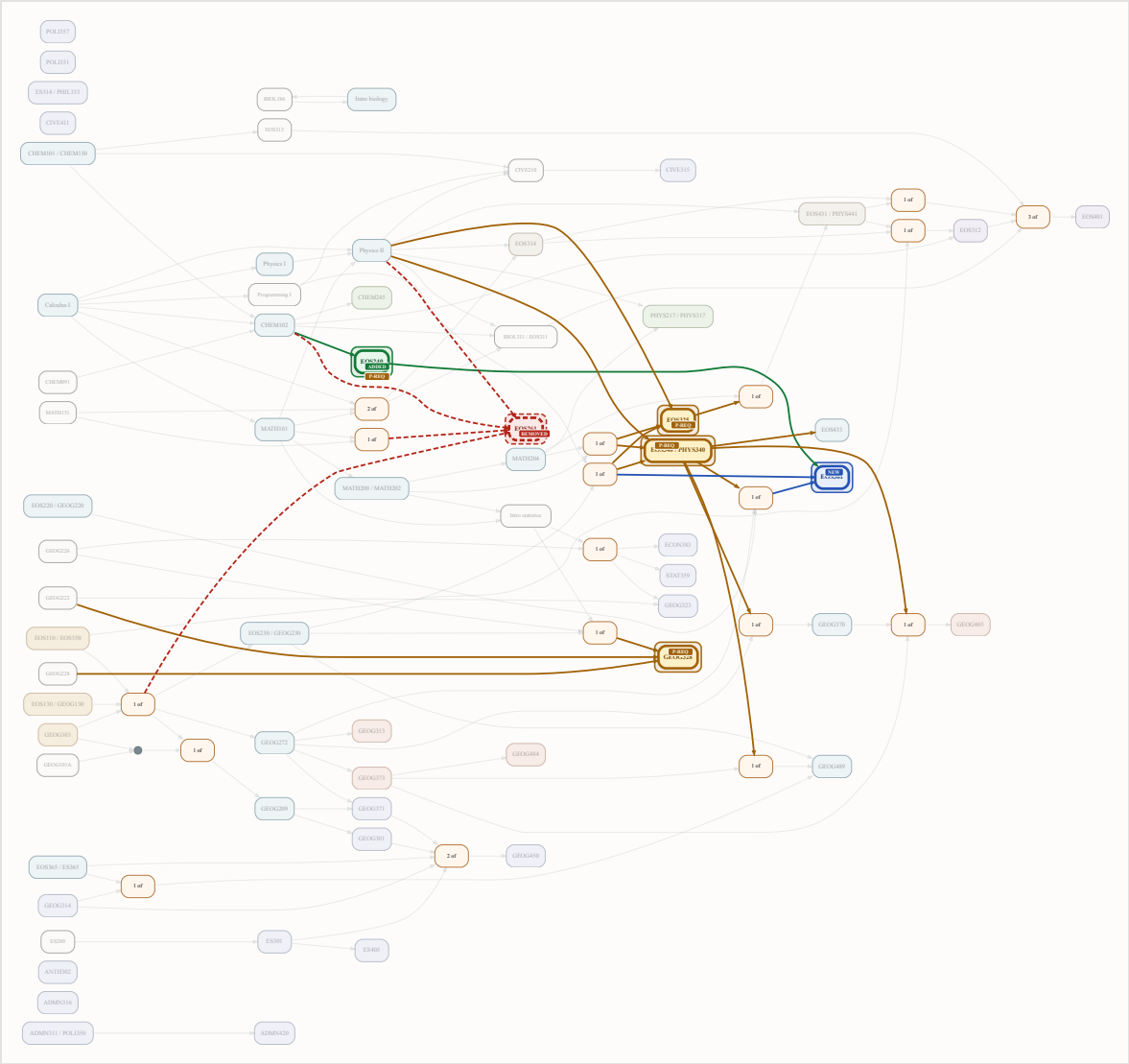
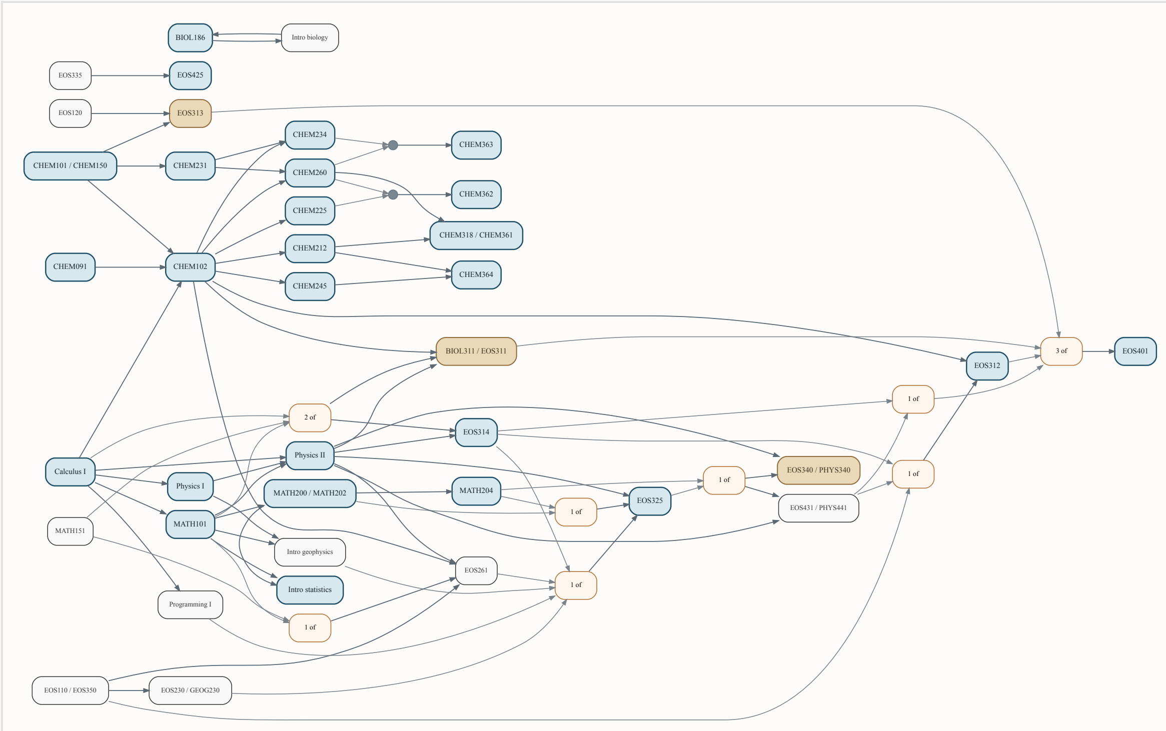


Figure 10. Climate Science shows **EOS240** added with pre-req changes, **EOS261** removed, and **EOS361** added as a new course.

CURRENT APPROVED STRUCTURE



RECOMMENDED PROPOSAL

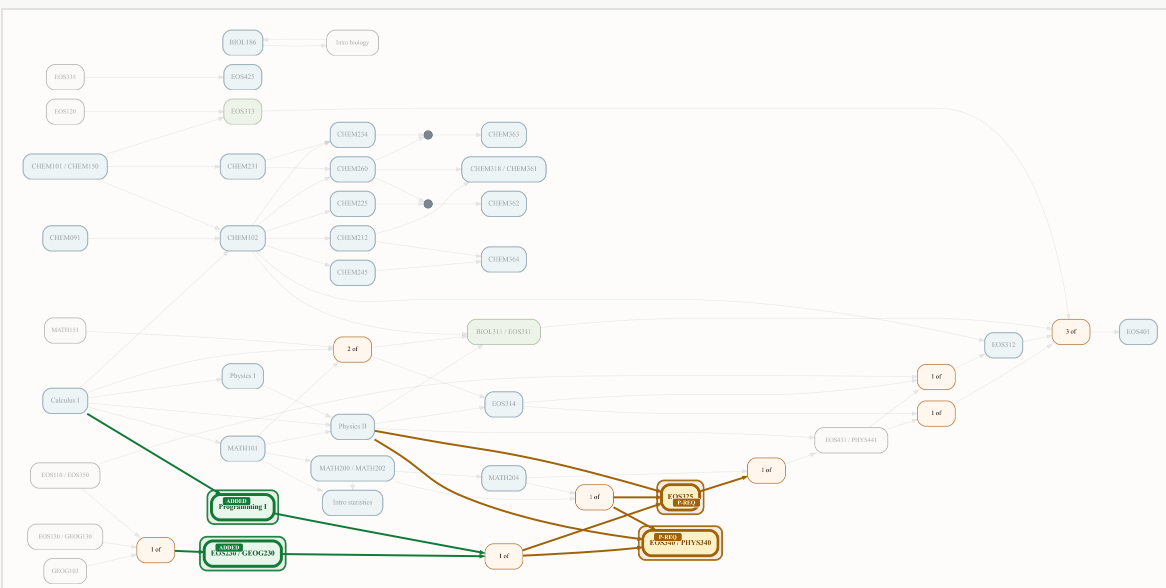


Figure 11. **Chemistry and Ocean Sciences** is shown with the recommended one-of **`CSC110`** or **`EOS230`** requirement.

SECTION 7

Consultation Decisions

These are the decisions that need explicit feedback before a formal proposal is drafted.

DECISION	WORKING DIRECTION	MAIN TRADEOFF
EOS230 versus CSC110 as the entry to computing	Prefer EOS230 as the SEOS route while retaining CSC110 where it is already embedded and as the other recognized first programming course.	Local control and disciplinary alignment versus relying on an existing stable course, while keeping the broader programming-to-modelling progression tractable for students.
Chemistry and Ocean Sciences	Recommend adding one of CSC110 or EOS230 to the program.	Preserving a coherent Chemistry and Ocean Sciences pathway whose first two years stay close to Chemistry, while giving students an intentional route into the shared computing progression.
Physical Geography and Earth and Ocean Sciences	Prefer replacing the Year 2 statistics-options block with EOS230, while asking Geography to add EOS230 to the affected quantitative prerequisite options.	Cleaner preparation for later SEOS courses and a stronger student pathway versus pressure on an already crowded program and the need for Geography coordination.
Breadth of access to EOS240	Use CHEM102 only as the only prerequisite.	Broader access and simpler program design versus less common Earth or ocean background at entry.
EOS240 delivery mode	Keep **3-3-0** as the current baseline, but evaluate **3-0-0** as the main contact-hour reduction option.	Lower scheduled hours versus preserving dedicated structured problem or lab time.

DECISION	WORKING DIRECTION	MAIN TRADEOFF
Scope and role of EOS361	Keep a named third-year Climate Science successor with the stated prerequisite structure, then identify which programs can use it as a required or optional course and which courses may use it as a prerequisite.	A visible advanced home for climate-system material versus pressure to bundle wider upper-level redesign into the same proposal.
Upper-level courses with overlapping content	Prefer to keep the current package focused on Year 2 and direct prerequisite cleanup, while flagging broader upper-level questions for later work.	A tractable proposal versus a substantially broader restructuring exercise.

SECTION 8

Next Steps

Confirm the package direction.
Decide whether the department supports the linked **EOS230**, **EOS210**, **EOS240**, **EOS261**, **EOS361**, **EOS325**, and **EOS340** package.

Resolve program-specific pathways.
Discuss the Chemistry and Ocean Sciences one-of **CSC110**/**EOS230** recommendation and the Physical Geography and Earth and Ocean Sciences statistics-block replacement before the proposal moves into motion language.

Define course outcomes.
Draft learning outcomes and Calendar language for **EOS230**, **EOS240**, and **EOS361**.

Coordinate externally.
Consult Biology, Geography, and Chemistry on the program-specific effects, including the proposed Geography prerequisite updates, before formal submission.