From: DSI Director <dsidirector@uoregon.edu>
Date: Tuesday, August 27, 2019 at 1:01 PM
To: Joe Sventek <jsventek@uoregon.edu>, Daniel Dugger <ddugger@uoregon.edu>
Cc: Bill Cresko <wcresko@uoregon.edu>, Gretchen Drew <gdrew@uoregon.edu>
Subject: BS in Data Science due dilligence

Dear Dan and Joe,

As you know, we are in the process of creating a new undergraduate data science degree in order to capitalize on investments to the university as part of the Presidential Data Science Initiative. I believe that this program will bring synergistic gains to the entire university because it will enhance our standing as a strong research campus and help recruit increasingly qualified students. It is our expectation that the Data Science Program will recruit new students to campus, leading to a net increase in the total number and quality of students on campus, rather than being competitive with existing degrees.

At this point, we have initiated the degree approval process. The degree will at least initially sit within CAS under a new Program in Data Science, and so the degree and course approval process is moving though the CAS curriculum committee. This will ensure that the program curriculum fits within university guidelines and complements our current offerings.

Because data science is a multidisciplinary field that relies on fundamental aspects of mathematics and computer science, data science majors will be required to enroll in several courses from the Department of Mathematics and the Department of Computer and Information Science.

Additionally, five new data science courses will be developed, each of which will involve application of mathematical and computational techniques. As such, I am contacting you to ensure that the proposed Data Science Program, including degree requirements and related new course offerings, will not be seen to generate a negative impact on your department as a whole or on your existing courses. Additionally, we want to make sure that there is not significant overlap with existing MATH and CIS course offerings, or that if significant overlap exists, that we can put appropriate measures in place to ensure that student's do not receive duplicate credit for taking multiple courses that each teach the same content.

I'm including in this email an undergraduate curriculum summary, complete with degree plan, as well as syllabi for the set of proposed new data science courses; note that some of the syllabi have edits and comments, as we are in the process of finalizing these for submission to the CAS Curriculum Committee.

Please feel free to comment on any of the offerings as well as the general degree structure. I am also happy to answer any questions that you might have.

Thanks so much for your help with this.

Bill

_____
William A. Cresko, Professor of Biology
Executive Director, UO Data Science Initiative
Member, Institute of Ecology and Evolution (IE²)
University of Oregon, Eugene, OR 97403-5289
www.uoregon.edu/~wcresko   @wcresko
_____

From:	Joe Sventek
Sent:	Tuesday, August 27, 2019 1:33 PM
To:	DSI Director
Cc:	Bill Cresko; Gretchen Drew; Daniel Dugger
Subject:	RE: BS in Data Science due dilligence

Bill,

Thank you for your message. CIS is very happy to be a partner in the delivery of this degree program.

CIS currently teaches a general education course on data science, as well as a 2-quarter sequence at the 300 level. We will terminate offering these courses once the BS in Data Science curriculum is being offered.

The proposed Data Science Program, including degree requirements and related new course offerings, will not generate a negative impact on CIS as a whole or on your existing courses. There is no significant overlap with existing CIS course offerings, and I expect that DSCI 345M will be popular with CIS majors.

Joe Sventek
Professor and Head
Department of Computer and Information Science
University of Oregon
jsventek@uoregon.edu

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From: DSI Director
Sent: Tuesday, August 27, 2019 1:01 PM
To: Joe Sventek <jsventek@uoregon.edu>; Daniel Dugger <ddugger@uoregon.edu>
Cc: Bill Cresko <wcresko@uoregon.edu>; Gretchen Drew <gdrew@uoregon.edu>
Subject: BS in Data Science due dilligence

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Executive Director, UO Data Science Initiative
Member, Institute of Ecology and Evolution (IE²)
University of Oregon, Eugene, OR 97403-5289
www.uoregon.edu/~wcresko   @wcresko
_____

From:	Daniel Dugger
Sent:	Thursday, August 29, 2019 1:44 PM
To:	DSI Director
Cc:	Joe Sventek
Subject:	Re: BS in Data Science due dilligence

Dear Bill and Joe,

I have reviewed the proposal for the DSCI major and the associated courses, and the Math Department supports the approval of all these
initiatives.   There are a few areas of possible overlap/concern that
will occur to the reviewing committees, so I include remarks about each:

1. I don't know if the intention is for DSCI 101 or 102 to meet the B.S.
Math requirement, but if they do then that would likely effect enrollment
in our MATH 105-106-107 courses and possibly in MATH 243. The Math
Department is not against that, but I note the issue. The B.S.
requirement has never been carefully articulated, and my understanding is
that it is being revised anyway, so I have no opinion on the
appropriateness of these courses meeting the requirement. Overall they
have very little "math" in them, although 102 has more depth in
that direction and I could see it possibly meeting the spirit of the
requirement.

2. The MATH/DSCI 345 course is similar to our existing MATH 343
course, and that is by design. The issue is that every "intro to stats"
course ends up covering roughly the same material, but with very different
depths and tools depending on the background of the intended student
audience. MATH 243 is a very general stats course aimed at students with
relatively little math background, and appropriate for a wide range of
students including those in business and the social sciences. MATH 343
is a deeper course, intended for students who have seen differential and
integral calculus but who don't necessarily have any programming
experience. MATH/DSCI 345 is for students with a similar math background
but quite a bit of programming experience.

I suggest UO adopt the rules that

a. students cannot get credit for both MATH 343 and MATH/DSCI 345, and
b. students who have completed MATH 461 cannot get credit for MATH/DSCI
   345 (by regression)

3. The topics in DSCI 102 have a fair amount of overlap with MATH 243
(probability, distributions, confidence intervals, hypothesis tests,
regression). Having reviewed the textbook, I feel that DSCI 102 is
treating these topics at a substantially less sophisticated level than
MATH 243, at least in terms of the mathematical content. This difference

feels appropriate for the distinction between 100- and 200-level courses.

Between the focus on data analysis in DSCI 102 and the difference in
mathematical depth of the two courses, I see the content of DSCI 102 and
MATH 243 as fairly different. I gave quite a bit of thought as to
whether a student who has completed MATH 243 should be given credit if they
then take DSCI 102. The learning outcomes of the two courses seem different
enough that I don't see a good argument for prohibiting that.

Sincerely,

Dan Dugger
Professor and Head
Department of Mathematics

On Tue, 27 Aug 2019, DSI Director wrote:

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> Dear Dan and Joe,
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>
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> As you know, we are in the process of creating a new undergraduate data science degree
> in order to capitalize on investments to the university as part of the Presidential
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> some of the syllabi have edits and comments, as we are in the process of finalizing
> these for submission to the CAS Curriculum Committee.
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> Please feel free to comment on any of the offerings as well as the general degree
> structure. I am also happy to answer any questions that you might have.
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> Thanks so much for your help with this.
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> Bill
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> William A. Cresko, Professor of Biology
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From:	Josh Roering
Sent:	Sunday, October 27, 2019 3:34 PM
To:	Joe Sventek
Subject:	Re: Content duplication with your statistics course[s]
Attachments:	GEOL418syllabus2018.pdf

Dear Joe,

I'm very excited to see the DSCI program move forward.

I'm attaching a recent syllabus for our GEOL 418/518 course which has much overlap. Our course is very application and tools oriented and recently we've been using R or JMP as the statistical engine. That said, our dept curriculum is moving towards Python and our GEOL 363 computational tools course which all of our majors are required to take is python-based. Again, that course is highly application specific. Our approach has been to teach more and more of these courses 'in-house' so that students consistently see the tools applied to Earth and Environmental problems.

All of this is to say that there's significant overlap with DSCI 345 that would preclude students from receiving credit for both courses.

cheers, Josh

_____

Joshua J. Roering, Professor and Head
Department of Earth Sciences
University of Oregon
Eugene, OR, 97403-1272

office: 325C Cascade Hall, ph: 541-346-5574, email: jroering@uoregon.edu, Web: blogs.uoregon.edu/jroering/
NOTE: As a **Designated Reporter**, I am required to report any incidents of prohibited discrimination and harassment including sexual violence or sexual harassment that I hear about to the university administration. I will also direct students to resources to help them.

On Fri, Oct 25, 2019 at 1:59 PM Joe Sventek <jsventek@uoregon.edu> wrote:

> Dear colleague,
>
>
> As part of the proposed BS/BA in Data Science curriculum, the Data Science program has proposed a course entitled "Probability and Statistics for Data Science"; this course was developed with the Mathematics Department, and is multi-listed as DSCI/MATH 345. I have attached the syllabus for the course.
>
>
> During the development of the course with the Mathematics department, we concluded that the content of MATH 343 was almost exactly what was needed for our Data Science majors, but that to be relevant, much of the assessed coursework needed to require use of Python statistical frameworks. It is, therefore, no surprise that students receiving credit for DSCI/MATH 345 cannot also receive credit for MATH 343 or MATH 461.

According to the information listed at http://catalog.uoregon.edu/arts_sciences/statistics/, your department offers the following undergraduate course[s] for which DSCI/MATH 345 may contain duplicate content:

GEOL 418

I would be most grateful if you or your delegate could compare your course[s] against the DSCI/MATH 345 syllabus for duplicate content and report back to me; given the strong overlap with MATH 343, and the fact that you have most likely had to determine the level of duplication of your course[s] with MATH 343 in the past, this should be a low overhead, straightforward task.

We feel a very strong need to require our students to take DSCI/MATH 345 as a core course in the Data Science degree; therefore, we propose a declaration that students receiving credit for DSCI/MATH 345 cannot also receive credit for any of your courses with significant overlap.

If you have any questions about this request, please do not hesitate to contact me at jsventek@uoregon.edu. We are in the process of pushing this degree through the curriculum committees and the Senate at the moment, so I would be most grateful if this analysis could be done at your earliest convenience.

Thank you in advance.

Joe Sventek

Professor and Head

Department of Computer and Information Science

University of Oregon

jsventek@uoregon.edu

From:	John Halliwill
Sent:	Friday, October 25, 2019 2:10 PM
To:	Joe Sventek
Cc:	John Halliwill
Subject:	Re: Content duplication with your statistics course[s]

Thanks for reaching out.

DSCI/MATH 345 looks like a great offering.

There is hardly any overlap with HPHY 212 Scientific Investigation in Physiology, which explores the process of conducting and communicating scientific research, and how data and statistics help us build and understand scientific knowledge about physiology and medicine. We only spend a little time with the most basic of statistical hypothesis testing, done within excel. Just the top concept, not the depth of what you are proposing. HPHY 212 has never been considered a substitute for a course in statistics, which is why we changed its name last year (formerly Evidence, Inference, and Biostatistics).

Thanks,
John

John Halliwill, PhD, FAPS, FACSM | Professor and Department Head | Human Physiology | University of Oregon | Eugene, OR
He/His/Him | 1.541.600.4337 | halliwil@uoregon.edu | http://eeplab.uoregon.edu | Schedule @ doodle.com/halliwill
As a **Designated Reporter**, I am required to report any incidents of prohibited discrimination and harassment including sexual violence or sexual harassment that I hear about to the university administration. I will also direct students to resources to help them.
Just because I email you in the evening, on the weekend, or on vacation, it doesn't mean I expect you to respond in kind. #worklifebalance

On Fri, Oct 25, 2019 at 2:01 PM Joe Sventek <jsventek@uoregon.edu> wrote:

> Dear colleague,
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We feel a very strong need to require our students to take DSCI/MATH 345 as a core course in the Data Science degree; therefore, we propose a declaration that students receiving credit for DSCI/MATH 345 cannot also receive credit for any of your courses with significant overlap.

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Thank you in advance.

Joe Sventek

Professor and Head

Department of Computer and Information Science

University of Oregon

jsventek@uoregon.edu

From:	Daniel Dugger
Sent:	Thursday, August 29, 2019 1:44 PM
To:	DSI Director
Cc:	Joe Sventek
Subject:	Re: BS in Data Science due dilligence

Dear Bill and Joe,

I have reviewed the proposal for the DSCI major and the associated courses, and the Math Department supports the approval of all these
initiatives.   There are a few areas of possible overlap/concern that
will occur to the reviewing committees, so I include remarks about each:

1. I don't know if the intention is for DSCI 101 or 102 to meet the B.S.
Math requirement, but if they do then that would likely effect enrollment
in our MATH 105-106-107 courses and possibly in MATH 243. The Math
Department is not against that, but I note the issue. The B.S.
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that it is being revised anyway, so I have no opinion on the
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but quite a bit of programming experience.

I suggest UO adopt the rules that

a. students cannot get credit for both MATH 343 and MATH/DSCI 345, and
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From:	Craig Parsons
Sent:	Wednesday, November 6, 2019 9:46 AM
To:	Joe Sventek
Subject:	Re: Content duplication with your statistics course[s]

Hi Joe,

Sure, I can see why that's an unnecessary complication. So how about if you take this as our response to put into Courseleaf:

There is overlap between the courses, since both are designed to introduce students to statistical modeling, probabilities, and the use of regression to test hypotheses. This should not be a problem, however, since we can see why different departments would want to have classes that teach introductory statistics in a way that is familiar and understandable to their own discipline. We teach these concepts with political data and examples. Thus we acknowledge the overlap but do not find it problematic in this instance.

Craig

From: Joe Sventek <jsventek@uoregon.edu>
Sent: Wednesday, November 6, 2019 8:43 AM
To: Craig Parsons <cap@uoregon.edu>
Subject: RE: Content duplication with your statistics course[s]

Craig,

If you do not find the overlap problematic (30% or less), then it would be better if we did not prevent students from receiving credit for both. Let me know what you think.

Joe

From: Craig Parsons
Sent: Monday, October 28, 2019 6:49 AM
To: Joe Sventek <jsventek@uoregon.edu>
Subject: Re: Content duplication with your statistics course[s]

Hi Joe,

Our departmental Curriculum Committee chair has reviewed the DSCI/MATH 345 proposal for overlap with PS 445/446 and has this to say:

There is undoubtably overlap between the courses, since both courses are designed to introduce students to statistical modeling, probabilities, and the use of regression to test hypotheses. This should not be a problem, however, since we can see why different departments would want to have classes that teach introductory statistics in a way that is familiar and understandable to their own discipline. Thus we acknowledge the overlap but do not find it problematic in this particular instance. We agree to declare that students receiving credit for DSCI/MATH 345 cannot also receive credit for these stats courses (PS 445, 446).

Let me know if you need anything else, and best of luck with the new program.

Craig

From: Joe Sventek <jsventek@uoregon.edu>
Date: Friday, October 25, 2019 at 2:04 PM
To: Craig Parsons <cap@uoregon.edu>
Subject: Content duplication with your statistics course[s]

Dear colleague,

As part of the proposed BS/BA in Data Science curriculum, the Data Science program has proposed a course entitled "Probability and Statistics for Data Science"; this course was developed with the Mathematics Department, and is multi-listed as DSCI/MATH 345. I have attached the syllabus for the course.

During the development of the course with the Mathematics department, we concluded that the content of MATH 343 was almost exactly what was needed for our Data Science majors, but that to be relevant, much of the assessed coursework needed to require use of Python statistical frameworks. It is, therefore, no surprise that students receiving credit for DSCI/MATH 345 cannot also receive credit for MATH 343 or MATH 461.

According to the information listed at http://catalog.uoregon.edu/arts_sciences/statistics/, your department offers the following undergraduate course[s] for which DSCI/MATH 345 may contain duplicate content:

PS 445
PS 446

I would be most grateful if you or your delegate could compare your course[s] against the DSCI/MATH 345 syllabus for duplicate content and report back to me; given the strong overlap with MATH 343, and the fact that you have most likely had to determine the level of duplication of your course[s] with MATH 343 in the past, this should be a low overhead, straightforward task.

We feel a very strong need to require our students to take DSCI/MATH 345 as a core course in the Data Science degree; therefore, we propose a declaration that students receiving credit for DSCI/MATH 345 cannot also receive credit for any of your courses with significant overlap.

If you have any questions about this request, please do not hesitate to contact me at jsventek@uoregon.edu. We are in the process of pushing this degree through the curriculum committees and the Senate at the moment, so I would be most grateful if this analysis could be done at your earliest convenience.

Thank you in advance.

Joe Sventek
Professor and Head
Department of Computer and Information Science
University of Oregon
jsventek@uoregon.edu

From:	Michael Pangburn
Sent:	Wednesday, November 6, 2019 2:17 PM
To:	Joe Sventek
Subject:	Re: Content duplication with your statistics course[s]
Attachments:	Syllabus OBA 311 - Business Analytics I.pdf; Syllabus OBA 312 - Business Analytics II.pdf

Hi Joe,
Unfortunately that request fell by the wayside but I just took a look at the details and attachment.

LCB no longer offers OBA 330 (or 330H). We now have a two course sequence with related content that is required for all Business (including Accounting) majors: OBA 311 and OBA 312.   I am attaching syllabi for these two courses.

As you can see from these syllabi, there is indeed the kind of significant content duplication you predicted. Therefore, a student taking DSCI 345 should not be able to get credit for taking either OBA 311 or OB 312 (or the Honors variants 311H and 312H).

Let me know if you need anything else.

Best,
..mike

Michael Pangburn
Ehrman V. Giustina Professor and Department Head
Operations and Business Analytics
479 Lillis Building
Lundquist College of Business
University of Oregon
pangburn@uoregon.edu | 541-346-3407

From: Joe Sventek <jsventek@uoregon.edu>
Date: Wednesday, November 6, 2019 at 1:45 PM
To: Michael Pangburn <pangburn@uoregon.edu>
Subject: RE: Content duplication with your statistics course[s]

Michael,

On 25 October I sent you the appended email regarding content duplication between DSCI 345 and OBA 330 and OBA 330H. I have attached the current syllabus of 345 again for ease of reference.

I would be most grateful if I could hear back from you regarding your estimate of the level of duplication so that I can determine whether students can take our course and your course[s] for credit. I tried to find an online syllabus for OBA 330 so I could compare myself, but was unable to locate the syllabus online.

If I do not hear back from you or one of your colleagues by 5:00pm on Friday, I will assume that any content duplication is insufficient to warrant preventing students from receiving credit for both DSCI 345 and your course.

Joe Sventek

Professor and Head
Department of Computer and Information Science
University of Oregon
jsventek@uoregon.edu

From: Joe Sventek
Sent: Friday, October 25, 2019 2:14 PM
To: Michael Pangburn <pangburn@uoregon.edu>
Subject: Content duplication with your statistics course[s]

Dear colleague,

As part of the proposed BS/BA in Data Science curriculum, the Data Science program has proposed a course entitled "Probability and Statistics for Data Science"; this course was developed with the Mathematics Department, and is multi-listed as DSCI/MATH 345. I have attached the syllabus for the course.

During the development of the course with the Mathematics department, we concluded that the content of MATH 343 was almost exactly what was needed for our Data Science majors, but that to be relevant, much of the assessed coursework needed to require use of Python statistical frameworks. It is, therefore, no surprise that students receiving credit for DSCI/MATH 345 cannot also receive credit for MATH 343 or MATH 461.

According to the information listed at http://catalog.uoregon.edu/arts_sciences/statistics/, your department offers the following undergraduate course[s] for which DSCI/MATH 345 may contain duplicate content:

OBA 330
OBA 330H

I would be most grateful if you or your delegate could compare your course[s] against the DSCI/MATH 345 syllabus for duplicate content and report back to me; given the strong overlap with MATH 343, and the fact that you have most likely had to determine the level of duplication of your course[s] with MATH 343 in the past, this should be a low overhead, straightforward task.

We feel a very strong need to require our students to take DSCI/MATH 345 as a core course in the Data Science degree; therefore, we propose a declaration that students receiving credit for DSCI/MATH 345 cannot also receive credit for any of your courses with significant overlap.

If you have any questions about this request, please do not hesitate to contact me at jsventek@uoregon.edu. We are in the process of pushing this degree through the curriculum committees and the Senate at the moment, so I would be most grateful if this analysis could be done at your earliest convenience.

Thank you in advance.

Joe Sventek
Professor and Head
Department of Computer and Information Science
University of Oregon
jsventek@uoregon.edu

From:	Michael Dreiling
Sent:	Wednesday, November 6, 2019 2:31 PM
To:	Joe Sventek
Subject:	RE: Content duplication with your statistics course[s]

Dear Joe,
Thank you for your follow-up. I had a response to you on my front-burner, so this is timely. We typically have 3 faculty teaching our undergraduate statistics class each year and there is some variation in how the courses are taught. After brief consultations with all of them, I do think the commonalities lean in the direction of a more applied class, where students learn enough about statistical inference and testing that they get the fundamentals and then move into the use of real data to explore graphical and modeling techniques. None of our faculty teach an undergraduate course using Python (only in grad level multi-level modelling). The 312 and 412 courses use R or SPSS (I think one faculty member uses Stata. Anyway, I think it is safe to say (in agreement with you) that the proposed DSCI 345 is sufficiently different from our 312 and 412 that they cannot count for credit toward the DSCI 345 requirement. Best wishes,
Michael

From: Joe Sventek
Sent: Wednesday, November 6, 2019 1:59 PM
To: Michael Dreiling <dreiling@uoregon.edu>
Subject: RE: Content duplication with your statistics course[s]

Michael,

On 25 October I sent you the appended email regarding content duplication between DSCI 345 and SOC 312 and SOC 412. I have attached the current syllabus of 345 again for ease of reference.

We spoke briefly after the unit heads meeting last Wednesday, from which I recall that you indicated verbally that you did not think that the overlap was sufficient to merit preventing students from receiving credit for DSCI 345 and your courses.

I took the liberty to look at the descriptions of your courses on the Sociology web site, unearthing the following text: "SOC 312 can also be fulfilled by successfully completing MATH 243, 425, 426, 461 or PSY 302 with a grade of C- or better. Please be aware that MATH 243 will not count for upper division credit." DSCI 345 is considered on a par from a content perspective to MATH 343. All of the courses that are listed as permissible replacements are significantly less complete and rigorous than MATH 343; from this, I deduce that students who have taken SOC 312 for credit should be permitted to take DSCI 345 for credit as well.

SOC 412 is described as "Descriptive and inferential statistics, including multiple regression." From this brief description, I expect that there is much more overlap between DSCI 345 and SOC 412, with the primary difference being the specificity of the problems to which the statistical methods are applied. Therefore, my inclination is to indicate that students should NOT be able to take DSCI 345 and SOC 412 for credit.

I would be most grateful if I could hear back from you regarding your agreement/disagreement with my assertions regarding SOC 312 and SOC 412.

If I do not hear back from you or one of your colleagues by 5:00pm on Friday, I will assume that my assertions are correct, and I will proceed to indicate that SOC 412 cannot be taken for credit if credit has already been received from DSCI 345.

Thanks in advance..

Joe Sventek
Professor and Head
Department of Computer and Information Science
University of Oregon
jsventek@uoregon.edu

From: Joe Sventek
Sent: Friday, October 25, 2019 2:06 PM
To: Michael Dreiling <dreiling@uoregon.edu>
Subject: Content duplication with your statistics course[s]

Dear colleague,

As part of the proposed BS/BA in Data Science curriculum, the Data Science program has proposed a course entitled "Probability and Statistics for Data Science"; this course was developed with the Mathematics Department, and is multi-listed as DSCI/MATH 345. I have attached the syllabus for the course.

During the development of the course with the Mathematics department, we concluded that the content of MATH 343 was almost exactly what was needed for our Data Science majors, but that to be relevant, much of the assessed coursework needed to require use of Python statistical frameworks. It is, therefore, no surprise that students receiving credit for DSCI/MATH 345 cannot also receive credit for MATH 343 or MATH 461.

According to the information listed at http://catalog.uoregon.edu/arts_sciences/statistics/, your department offers the following undergraduate course[s] for which DSCI/MATH 345 may contain duplicate content:

SOC 312
SOC 412

I would be most grateful if you or your delegate could compare your course[s] against the DSCI/MATH 345 syllabus for duplicate content and report back to me; given the strong overlap with MATH 343, and the fact that you have most likely had to determine the level of duplication of your course[s] with MATH 343 in the past, this should be a low overhead, straightforward task.

We feel a very strong need to require our students to take DSCI/MATH 345 as a core course in the Data Science degree; therefore, we propose a declaration that students receiving credit for DSCI/MATH 345 cannot also receive credit for any of your courses with significant overlap.

If you have any questions about this request, please do not hesitate to contact me at jsventek@uoregon.edu. We are in the process of pushing this degree through the curriculum committees and the Senate at the moment, so I would be most grateful if this analysis could be done at your earliest convenience.

Thank you in advance.

Joe Sventek
Professor and Head

Department of Computer and Information Science
University of Oregon
jsventek@uoregon.edu