

Understanding West Point Source Materials

Librarians at USMA (West Point) were extremely helpful in digging into the archives for information for the Cajori Two Project. Despite this, our data is sometimes fragmentary. Furthermore, data one would normally find at a civilian institution is not always available. Data which is available is sometimes presented in ways we are not accustomed to (especially early in the century) or spread around in different documents.

West Point is not organized only as a college. It's central mission is to train military officers, giving them both the intellectual experiences of undergraduates elsewhere and training in military matters. This means that instruction is organized differently from civilian institutions.

Some examples of USMA's organization:

- In 1905, the spring semester is about 35% longer than the fall semester.
- In the early years of the century, cadets took identical, or almost identical, programs. Thus, there is no system of credits or semester hours in the early years.
- Various mathematical subjects often shared what we would call a course. For example, in the second year mathematics course, cadets study Solid Geometry, Calculus and Descriptive Geometry. USMA is entirely willing to have the transition from Solid Geometry to Calculus occur in mid-November, say, rather than insist that it happen at a term boundary, with the calculus subject matter encapsulated in a "course" named Calculus rather than the generic name "Mathematics".
- "Majoring" in mathematics in a manner comparable to what this phrase currently connotes in a civilian institution, is not possible till 1985. (However, as early as 1985, it is possible for some cadets to do a bit more mathematics than other cadets and this "bit more" slowly expands till the major system of 1985.)

Along with differences in the organization of instruction, USMA documents its system of instruction in ways that differ from civilian college catalogs. This partly a matter of what information is provided, but also extends to terminology that is unique to USMA (what is called the "freshman" class at civilian universities; seniors are "firsties", juniors are "cows") We have been fortunate to have had help, not only from USMA archivists, but also from the following professors and former cadets at USMA: General Frank Giordano (Ret.), General David (Chris) Arney (Ret.), Col. Joseph Myers (Ret.), LTC Hector Morales, LTC Jesse Germain and LTC Rod Sturdivant.

For all these reasons, our reporting of mathematics at USMA is not strictly comparable to our reporting for civilian institutions.

It is interesting to note, however, that as the century progresses, the academic part of the USMA experience starts to resemble civilian undergraduate programs.

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We have, in each year been able to find out which mathematical subjects are studied, in part because textbooks are mentioned in the early years. It is impossible to tell how much time is given over to each subject in the early years. However, we have worked out to the best of our ability how much time is given over to mathematics, and how much time is given over to the academic portion of a cadet's life at USMA. Thus, military maneuvers, weapons training are not counted as part of the academic portion of a cadet's life, but military history and military engineering (both classroom activities) are. Physical education is also counted, since this is the custom at civilian institutions, even though there is a good deal more physical education than at civilian institutions. But we do not consider drilling, marching, parades and the like to be physical education, and thus not academic.

Our estimates of hours spent on this or that involved some fairly fussy arithmetic, based on document in our possession and on information provided by our informants. Much of this arithmetic is penciled in on the pages we have scanned for the accompanying files. If our penciled-in calculations are not visible, we are willing to provide a more legible accounting on request.

Between 1975 and 1985, there is a considerable reduction in in-class hours in the cadet's academic program. This is because cadets were being asked to do more homework, instead of learning quite so much in class.

W. Point

From: "Arney, Chris (Civ, ARL/ARO)" <david.arney1@us.army.mil>
Subject: **RE: numbers (UNCLASSIFIED)**
Date: May 6, 2008 9:47:33 AM EDT
To: "Walter Meyer" <meyer1@adelphi.edu>
Cc: "Myers, J. COL MATH" <Joseph.Myers@usma.edu>

Classification: UNCLASSIFIED
Caveats: NONE

Walter

So here is what I recall and guess (educatedly). Academic courses are calculated as 40 hrs of work for 1 CH. Usually, the academic work is 1/3 in class and 2/3 outside of class so a 3 CH course has 40 in class hours and 80 outside class hours. For PE, the ratio was turned around since there was little outside of class work (practice was about it). Therefore a half credit course involved 20 total hrs of which 10 hrs were in class. This calculates out to approximately 310 in-class PE hrs over a 4 year period (15.5 CH). This sounds about right (maybe a little high) as I recall lots of PE time. I would guess we had about 80 hrs per year for the first 2 years and maybe 60 hrs per year tht elast 2 years.

Sorry I can't be more precise.

Chris A
Chris Arney,
Division Chief, Mathematical Sciences
Program Manager, Cooperative Systems
Army Research Office, Durham, NC
919-549-4254, 919-549-4354 (FAX)

-----Original Message-----

From: Walter Meyer [mailto:meyer1@adelphi.edu]
Sent: Monday, May 05, 2008 2:42 PM
To: Arney, Chris (Civ, ARL/ARO)
Subject: Re: numbers (UNCLASSIFIED)

Hi Chris,

Thank you for your thoughts. Let me tell you what I m doing.

This concerns a project called Cajori Two, named after Florian who, in 1890, wrote a book in which he describes the curricula of 19 undergraduate colleges. Our project, which has partial sponsorship of MAA, hops to track a similar number of institutions through the 20th century at 10 year intervals.

West Point is one of them, and it presents a challenge I am struggling with. The root of the difficulty is that because WP is so different from civilian institutions, it is not always easy to get comparable

Handwritten notes:
Arney
con
ment

W. Point

data. I have been trying to get estimates of how many hours cadets spend in class in academic subjects in their 4 years together. Likewise, how many hours for math in the core and then for a math major, once majors became available. Even these simple-sounding questions are not always easy to answer based on the information available on-line or what the archivists have sent me. It's sort of modeling problem because I have to make assumptions here and there. The whole thing makes me nervous because I don't have the expertise to make assumptions I feel totally OK with. For this reason, Joe Myers' and your willingness to chime in are a useful comfort.

What makes me plow ahead is that the changes in the second half of the 20th century are so dramatic that they are unlikely to be resulting from my errors.

I'll keep you informed and will be happy for your input.

Right at the moment, I have this question: for phys ed, in recent decades (say 1985-2004), how many hours of actual exercise (and class time in cases where there was book work) would a typical cadet have over 4 years? To jog your memory, here is what the 2004 catalog says: In 4 years, you would have to take 15.5 credit hours, spread over 11 courses (most of the courses just 0.5 credit hours.) So what would that mean for clock hours (counting an hour as 50 minutes I guess)? Educated guessing acceptable.

Best,
Walter

On May 4, 2008, at 9:31 AM, Arney, Chris (Civ, ARL/ARO) wrote:

Classification: UNCLASSIFIED
Caveats: NONE

Walter

I believe your information and Joe's explanations are correct. There were several reductions in classtime during that period of time as WP moved to become more like other undergraduate programs (electives, majors, outside prep time, etc). The trend started around 1973 or 1974. I looked at my transcript right now and I took 173 credit hrs. My lightest semester was my first when I took 19 credits and I peaked in junior year with 23.5 CH -- yikes. So I think Joe had the

W. Point

analysis

correct. I think Fred Rickey maybe has done much more analysis.

BTW,

in Math, I had (23 required CH -- 7.5, 7.5, 4, 4 for my first 4 semesters). I hope this helps. Let me know if I can be of any assistance.

Chris A
Chris Arney,
Division Chief, Mathematical Sciences
Program Manager, Cooperative Systems
Army Research Office, Durham, NC
919-549-4254, 919-549-4354 (FAX)

-----Original Message-----

From: Myers, J. COL MATH [<mailto:Joseph.Myers@usma.edu>]

Sent: Friday, May 02, 2008 4:12 PM

To: Walter Meyer

Cc: Arney, Chris (Civ, ARL/ARO)

Subject: RE: numbers

Hi Walt. Qualitatively, I know that we did spend a lot more time in

class in the 1975 than in 1985. We had classes every Sat morning --

these were gradually minimized by 1985 and eliminated in 1988.

Credit

hours in core math were reduced during this period. Mandatory 2-semester EE, the 4th semester of English, the 3d semester of

Physics,

etc, were eliminated during this period (up to about 1990). I

personally took 154 CH as a cadet (some as voluntary overload).

I don't

know if 2718 is too high, but my personal estimate of

$18 \times 154 = 2772$ hours

in class for me as a cadet is probably not far off. Maybe your estimates are off some -- 30% sounds like a big drop. But a lot

of that

reduction is real. What compensated was the out of class prep

-- we

were so busy back then that we spent little time prepping -- we

mostly

just did requirements, and not with high-quality time. By the

late 80's

and especially by the 90's we were demanding more prep and more

quality

time on out of class requirements, time that had been freed up

through

curricular reductions.

I have cc'd Chris Arney -- he may be able to affirm or correct some of

my perspective. Thanks.

W. Point

Joe

From: Walter Meyer [<mailto:meyer1@adelphi.edu>]
Sent: Friday, May 02, 2008 2:18 PM
To: Myers, J. COL MATH
Subject: numbers

Hi Joe,

With your help (for which many thanks) and catalog info sent me by your library, I have produced some numerical estimates of in-class hours in various years for various portions of the curriculum. Im not done by any means, but I am staring at some stuff I don't understand and that makes me wonder about proceeding. Here is an example

1975 in-class hours needed for academic instruction in all subjects in
all 4 years added together: 2718
1985 in-class hours needed for academic instruction in all subjects in
all 4 years added together: 1869 + hrs for phys ed.

I freely admit that there is a bit of educated guessing in producing these estimates. There is data not reported that I needed, so I made it up. I am agonizing a bit whether I should even report such fuzzy numbers. But my reason for this email is not to get you to cluck about my problems, but rather this: my errors are unlikely to explain the discrepancy in the numbers. Part of it is the semester in 1975 was 18 weeks and in 1985 was 16. (This would explain about 300 hours.) Can you add any wisdom to this explanatory challenge? By the way, the 1985 number is rather close to the approx. 1800 hrs. most civilian institutions require for a 4-year bachelors.

Best, Walter

Note: As of 3/18/08 my email address has changed to:

meyer1@adelphi.edu

W. Point

The old address will work for an undetermined period.

Classification: UNCLASSIFIED
Caveats: NONE

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meyer1@adelphi.edu

The old address will work for an undetermined period.

Classification: UNCLASSIFIED
Caveats: NONE

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From: "Myers, J. COL MATH" <Joseph.Myers@usma.edu>
Subject: **FW: phys ed**
Date: May 19, 2008 6:31:45 AM EDT
To: "Walter Meyer" <meyer1@adelphi.edu>

Wait -- As requested. The last four (gray) lines are totals, depending on what kind of student you are. about 3/8 of students are in the 4th-from-the-bottom line, 3/8 are in the 3d and 2d-from the bottom line, and 1/4 are in the last line.

Joe

From: Germain, J. LTC DPE
Sent: Friday, May 16, 2008 8:33 PM
To: Myers, J. COL MATH
Cc: East, W. DR DPE
Subject: FW: phys ed

Sir,

Sorry for the delay, I was in DC this week at meetings and just read this reply from our Director of Education. This isn't historical data to 1985, but this is the current model and the program hasn't changed much at all over the last two decades in terms of the hours allocated to the Physical Program and its associated activity/cognitive courses. Professor Meyer asked for activity hours, so we included both numerically nomenclatured courses and competitive sports. I assume he wants to remove our cognitive courses; if so, please tell him to subtract the hours from PE 150 and PE 350. All other courses/experiences are physically active.

Also, please note that there is a difference in total active hours between Corps, Club, and Company Squad cadets.

v/r,
Jesse

LTC Jesse Germain
M.B.A, Ph.D.
Deputy Director
Department of Physical Education
United States Military Academy
(845) 938-7621

Core Curriculum	Credit Hrs	Contact Hrs	Prep Hrs	Total Hrs
PE115/6 - Combatives Boxing	0.5	20	0	20
PE117 - Military Movement	0.5	20	0	20
PE150 - Fund of Personal Fitness	1.5	20	20	40
PE 2XX - Lifetime Physical Activity	0.5	20	0	20
PE320/1/2/3 Survival Swimming	0.5	20	0	20
PE 350 - Army Fitness Development	1.5	20	20	40
PE 460 - Combat Applications	0.5	20	0	20
Core Curriculum Totals	5.5	140	40	180

*Must be
for Summary*

W. Point

PE 480 - Company Athletics	1.0	384	0	384
PE 481 - Club Sport Athletics	2.0	800	0	800
PE 482 - Corps Squad Athletics	3.0	1280	0	1280
Total - Company Athlete	13.5	524	0	564
Total - Club Athlete .5 autho	17.5	732	0	732
Total - Club Athlete full autho	21.5	940	0	980
Total - Corps Squad Athlete	29.5	1420	0	1460

From: Myers, J. COL MATH
Sent: Monday, May 05, 2008 5:44 PM
To: Germain, J. LTC DPE; Walter Meyer
Subject: FW: phys ed

Walt -- I don't know -- I have forwarded this to LTC Jesse Germain, the Deputy in our DPE.

Jesse -- Prof Meyer is conducting a benchmarking study of credit-hours across several institutions across all disciplines -- can you answer his questions below? Thanks.

COL Joe Myers

From: Walter Meyer [mailto:meyer1@adelphi.edu]
Sent: Monday, May 05, 2008 2:44 PM
To: Myers, J. COL MATH
Subject: phys ed

Hi Joe,

Another question: for phys ed, in recent decades (say 1985-2004), how many hours of actual exercise (and class time in cases where there was book work) would a typical cadet have over 4 years? To jog your memory, here is what the 2004 catalog says: In 4 years, you would have to take 15.5 credit hours, spread over 11 courses (most of the courses just 0.5 credit hours.) So what would that mean for clock hours (counting an hour as 50 minutes I guess)? Educated guessing acceptable.

Thanks for putting me in touch with Chris Arney. I had lost track of his latest email address.

Best,
Walter

Note: As of 3/18/08 my email address has changed to:

meyer1@adelphi.edu

The old address will work for an undetermined period.

W. Point

From: "Morales, H. LTC DPE" <Hector.Morales@usma.edu>
Subject: **RE: data inquiry**
Date: July 1, 2008 11:45:10 AM EDT
To: "Walter Meyer" <meyer1@adelphi.edu>

Dear Prof. Meyer:

Please look at my answers below. I hope this helps.

1. The minimum requirements are to participate in either an intercollegiate, company athletics or clubs sports every year. Some cadets are intercollegiate, some are just company athletes, and some just club athletes. Each line describe the time for each group of cadets.
2. Yes they are required to participate...they are listed on the chart.
3. The Department of Physical Education (DPE) oversees the Company Athletes (formally known as intramurals) and the Competitive Sports Clubs. The Department of Intercollegiate Athletics oversees the NCAA collegiate athletes. DPE currently keep records of everyone's time and performance.

VR

LTC M
HECTOR R. MORALES-NEGRON
*Lieutenant Colonel, Academy Professor USMA
PhD, Sport and Exercise Psychology
Acting Deputy Director, Department of Physical Education
Bldg 727, Arvin CPDC, Room B347
U.S. Military Academy, West Point
(845)938-6648*

From: Walter Meyer [<mailto:meyer1@adelphi.edu>]
Sent: Wednesday, June 25, 2008 1:16 PM
To: Morales, H. LTC DPE
Subject: data inquiry

Dear LTC Morales,
Recently, LTC Germain provided me with some useful information for a research project, notably the chart below. There are a few clarifications I would like, and it appears that you

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would be the logical source rather than LTC Germain.

Would you be kind enough to answer these questions concerning the chart:

1. As I am interested in minimum requirements, I assume I should use the line 4th from the bottom for that. Yes?
2. I think I read, in some catalog or other, that each cadet had to participate in either inter-collegiate sports or intra-mural sports. Are these activities covered in the table below?
3. In USMA catalog text I have seen, reference is sometimes made to "Physical Education". Does that phrase include Intra-mural and intercollegiate sports?
I am grateful for your help.

Prof. Walter Meyer
Dep't. of Mathematics
Adelphi University

Core Curriculum	Credit Hrs	Contact Hrs	Prep Hrs	Total Hrs
PE115/6 - Combatives Boxing	0.5	20	0	20
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PE 2XX - Lifetime Physical Activity	0.5	20	0	20
PE320/1/2/3 Survival Swimming	0.5	20	0	20
PE 350 - Army Fitness Development	1.5	20	20	40
PE 460 - Combat Applications	0.5	20	0	20
Core Curriculum Totals	5.5	140	40	180
PE 480 - Company Athletics	1.0	384	0	384
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PE 482 - Corps Squad Athletics	3.0	1280	0	1280
Total - Company Athlete	13.5	524	0	564
Total - Club Athlete .5 autho	17.5	732	0	732
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Total - Corps Squad Athlete	29.5	1420	0	1460

From: Myers, J. COL MATH **Sent:** Monday, May 05, 2008 5:44 PM **To:** Germain, J. LTC DPE; Walter Meyer **Subject:** FW: phys ed

Walt -- I don't know -- I have forwarded this to LTC Jesse Germain, the Deputy in our DPE.

Jesse -- Prof Meyer is conducting a benchmarking study of credit-hours across several institutions across all disciplines -- can you answer his questions below? Thanks.


COL Joe Myers

From: Walter Meyer [<mailto:meyer1@adelphi.edu>] **Sent:** Monday, May 05, 2008 2:44 PM **To:** Myers, J. COL MATH **Subject:** phys ed

Hi Joe,

Another question: for phys ed, in recent decades (say 1985-2004), how many hours of actual exercise (and class time in cases where there was book work) would a typical cadet have over 4 years? To jog your memory, here is what the 2004 catalog says: In 4 years, you would have to take 15.5 credit hours, spread over 11 courses (most of the courses just 0.5 credit hours.) So what would that mean for clock hours (counting an hour as 50 minutes I guess)? Educated guessing acceptable.

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From: "Arney, Chris (Civ, ARL/ARO)" <david.arney1@us.army.mil>
Subject: **RE: numbers (UNCLASSIFIED)**
Date: June 26, 2008 3:14:33 PM EDT
To: "Walter Meyer" <meyer1@adelphi.edu>
Security:  Signed (ARNEY.DAVID.C.1026048610)

Classification: UNCLASSIFIED
Caveats: NONE

Good to hear from you again and hope all is well. The MS courses were intended to be just like academic courses in terms of class time / prep time. So a 2.0 credit course had about 26 hrs in class and a 0.5 course had just 7 hrs or so. I have to admit that I thought these courses trivial and hardly worth academic credit. But having said that, I also know people who worked pretty hard and still did poorly in these subjects. I liked taking the material -- but it always seemed more like military training than real academic education.

Chris A
Chris Arney,
Division Chief, Mathematical Sciences
Program Manager, Cooperative Systems
Army Research Office, Durham, NC
919-549-4254, 919-549-4354 (FAX)

-----Original Message-----

From: Walter Meyer [<mailto:meyer1@adelphi.edu>]
Sent: Thursday, June 26, 2008 2:45 PM
To: Arney, Chris (Civ, ARL/ARO)
Subject: Re: numbers (UNCLASSIFIED)

Hi Chris,

Thank you for your numbers - they will be helpful. I'm sorry it has taken me so long to thank you. The end of semester rush and some personal matters have distracted me till now.

I have another question, this one concerning military science. These courses tend to be low credit courses in the years I have examined: ranging from 0.5 credits to 2.0 credits. Is there a rule of thumb for how to estimate in-class hours for such courses (assuming a 16 week semester which was evidently the case since 1985 and perhaps earlier)?

I saw Brian Winkel over the weekend and we reminisced about the "Arney era".

Best,
Walter

On May 6, 2008, at 9:47 AM, Arney, Chris (Civ, ARL/ARO) wrote:

Classification: UNCLASSIFIED

W. Point

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Mail Message



Mail Properties

Monday - June 30, 2008 9:02 AM

From: "Arney, Chris (Civ, ARL/ARO)" <david.arney1@us.army.mil>

To: "Walter Meyer" <meyer1@adelphi.edu>

Subject: RE: numbers (UNCLASSIFIED)

Attachments: smime.p7s (4929 bytes) [View] [Open] [Save As]
Mime.822 (22583 bytes) [View] [Save As]

Classification: UNCLASSIFIED
Caveats: NONE

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Walter

I do think there is significant variation by year, but your question seems relevant. It seems as if a WestPoint cadet is much like a college student taking a super heavy course load, taking ROTC (with its extra requirements), playing intercollegiate sport (with its extra requirements), and working a 20-30 hr job. If there are such students in college, then they are probably a lot like a WP cadet.

Chris A
Chris Arney,
Division Chief, Mathematical Sciences
Program Manager, Cooperative Systems
Army Research Office, Durham, NC
919-549-4254, 919-549-4354 (FAX)

-----Original Message-----
From: Walter Meyer [mailto:meyer1@adelphi.edu]
Sent: Friday, June 27, 2008 2:09 PM
To: Arney, Chris (Civ, ARL/ARO)

starting in 1946 it is possible to see how many years it took to do individual subjects within another approach to the best way can be to get to the bottom of the matter and to the mathematics

West Point

From: "Mauldin, A. MS LIB" <Alicia.Mauldin@usma.edu>
 Subject: Math
 Date: October 25, 2007 8:45:51 AM EDT
 To: <meyer@panther.adelphi.edu>

Dear Mr. Meyer,

Ms. Christoff has referred your request for information on the Math Curriculum to my attention for a reply.

The information listed below was taken from various sources located in the USMA Archives. Some of the material is available online and I have provided a link to the source for you. If after review the enclosed material you have additional questions please do not hesitate to contact me. I can be reached via email Alicia.mauldin@usma.edu or by phone (845) 938-7878.

I do hope that the above information will be of interest.
 Best Wishes from West Point!

Alicia Mauldin-Ware
 Archives Curator
 Special Collections and
 Archives Division

General Structure of the Curriculum	Program of instruction	Information about mathematics (As a Department of Instruction)	The Length of a term	Are there math electives	Is there a mathematics major	Rules about math honors courses or advanced math programs	Courses in Mathematics, listed by title.	Course descriptions of the content of math courses
1905	Course of Study and Practical instruction at the U. S. Military Academy. Page. 31 http://digital-library.usma.edu/libmedia/archives/oroc/v1905.pdf	1894 Regulations states the following: 32. This course shall comprise- Algebra. - Fundamental operations; algebraic fractions; involution and evolution; reduction and solution of equations; ratio and proportion; imaginary quantities; series and principles if limits; logarithms; interest; combinations; probabilities; elements of determinants; and general theory of equations. Trigonometry. - The solution of all the cases in plane and spherical trigonometry; analytical investigation of trigonometrical formulas; and construction of trigonometrical tables. Analytical Geometry. - Construction of algebraic	August to December January to May Sept to Dec? Jan to June 1	No	Majors program began in 1985	None	Can be found in the Course of Study and Practical Instruction	Can be found in the 1894 Regulations

expression;
solution of
determinate
problems;
systems of
coordinates;
determination
and
discussion of
the equations
of lines,
planes,
surfaces, and
volumes;
deduction of
the properties,
relations and
principles of
curves,
surfaces, and
volumes,
especially of
the conic
sections;
methods of
constructing
curves and
determination
of loci.

***Descriptive
Geometry.***

The graphic
illustration and
solution of
geometrical
problems in
space, and
the particular
application of
this method
spherical
projections;
construction of
maps, shades
and shadows;
perspective
and isometric
projections.

***Differential
and Integral
Calculus.***

Differentiation
of functions;
determination
of the rates of
change of
functions;
development
of functions
into series;
evaluation of
indeterminate
forms;
maxima and
minima of
functions;
determination
of tangents,
normals,
asymptotes,
order of
contact of
lines,
curvature,
involutives,
evolutes,
envelopes;
curve tracing;
spirals;
formulas and
rules for
integration;

		discussion and use of the arbitrary constant; integration between limits; rectification of curves; quadrature of curves, and cubature of volumes.						
1915	Department of Instructions, text books, books of reference etc. Page 74 (refers to the Department of Mathematics) http://digital-library.usma.edu/libmedia/archives/oroc/v1915.pdf	16320 min math	August to December January to May	No	Majors program began in 1985	None		
1925	Program of Instruction P. 20 http://digital-library.usma.edu/libmedia/archives/oroc/v1925.pdf	Taken from the 1924 edition of the USMA <u>Regulations</u> 84. <i>Department of Mathematics.</i> - The course in this department includes the subjects of algebra, geometry, trigonometry, plane analytical geometry, solid analytical geometry, descriptive geometry, calculus, and, for the most proficient students the theory of least squares.	August to December January to May	No	Majors program began in 1985	None		
1935	Program of Instruction and Course of Studies Page 22 http://digital-library.usma.edu/libmedia/archives/oroc/v1935.pdf	Taken from the 1931 edition of the USMA <u>Regulations</u> 87. <i>Department of Mathematics.</i> - The course in this department includes the subjects of algebra, geometry, trigonometry, plane, analytical geometry, solid analytical geometry, calculus and, for the more proficient students, the theory of least squares	August to December January to May	Yes	Majors program began in 1985	None		
1985		See Chart Below	August to December January to May	Yes	Yes	Honor Courses and Individual Advanced Study - If a cadet is an		

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						exceptional student, he or she may enroll in an course or advanced individual study in any of the disciplines taught at the Military Academy. These programs emphasize independent or tutorial work and are excellent preparation for graduate study. (page 45)		
1995		See Chart Below	August to December	January to May	Yes			
2005	Our collections of USMA Catalogues end at 2004-2005. If the data from the above catalogue will be useful we will be happy to supply you with the information		August to December	January to May				

1985 The Dual-Track Curriculum

The Military Academy's dual track academic curriculum offers a balanced education in engineering and the arts and sciences, while also permitting cadets to pursue academic specialization in a field of study or optional major of their choice.

Fourth Class (Freshman Year)	1 Math	Chem	Comp SCI	Eng	Hist (1)	
	2 Math	Chem	Psych	Lit	Hist (1)	
Third Class (Sophomore Year)	1 Math*	Phys*	Pol Sci	Phil	Frn (2) Lang	Terr Anal
	2 Phys*	Math	Elective	Frn (2) Lang	Econ	
Second Class (Junior Year)	1 Eitrl* Engr		Const Law	Mil Hist		
	2 Engr Sci		Free Elective	Mil Hist		
Fourth Class (Senior Year)	1 12 Field	Engr*		Mil Law		
	2 Electives		Eng			

Math-Science-Engineering (MSE) Track 12 Field Electives

Humanities- Public Affairs (HPA) Track 12 Field Electives

1995 USMA Baseline Academic Program

Freshman Year	1 English	History (US or World)	Computer Science	Chemistry	Math
	2 Literature	History (US or World)	Psychology	Chemistry	Math
Sophmore Year	1 Foreign Language	American Politics	Philosophy	Physics	Math
	2 Foreign Language	Economics	Terrain Analysis	Physics	Math
Junior Year	1 International Relations	Elective (1)	Engineering* Science	Engineering* Science	Military History
	English	Elective (2)	Military Leadership	Engineering* Science	Military History
Senior Year	Constitutional Law	Elective (3)	Elective (4)	Engineering* Design	Elective (5)

West pt.

	Elective (6)	Elective (7)	Elective (8)	Engineering* Design	Elective (9)
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Year 1995

The Academic Program

Elective Program

Field of Study **Depth of Study** **Optional of Major**
(9 Course/27 Credits) 10-13 Course/30-38 Credits

Military Science **Physical Education**
4 Intensive Sessions 8 Semester Course

Fields of Study/Majors (All majors are capitalized)