Physical education 4050

Intramural Athlet. minutes

2700 x 4 = 10,800

Total P Ed + Intra

= 4050 + 10,800

= 14850 min

= 247.5 hrs

= 248

CATALOGUE

of the

UNITED STATES MILITARY ACADEMY

1954-1955

What is "half class daily"

The upper sections get done quicker. What do they do with the extra time?

Other Accd hrs

= 3301 - 993 - 248

= 2060 hrs

W. Point 1954-55

CONTENTS

DEPARTMENTS OF INSTRUCTION

COURSE OF STUDY

The United States Military Academy offers a 4-year course of undergraduate study leading to the degree of Bachelor of Science. The Military Academy is accredited by the Middle States Association of Colleges and Secondary Schools. Except for a choice of one of five languages, the curriculum is prescribed.

The course of study is designed to prepare the graduate for the diverse intellectual problems that confront an officer during his career. To solve these problems the officer must have knowledge and understanding of our culture and technology, capacity for dealing with foreign allies, and a talent for adjusting military plans and operations to the status of the national economy. Because of such requirements and their resulting curricular objectives, the West Point course of study cannot be classed as either liberal arts or engineering but has somewhat the character of both.

After he graduates, the officer may do advanced study in civilian universities and he will invariably take advanced study in one or more graduate schools of the Armed Forces. These are of several levels: the branch schools; the Command and General Staff colleges; and, at the highest level, the War Colleges (Army, Navy, Air) and the joint colleges (National War College, Industrial College of the Armed Forces). Selected students from all the armed forces attend the joint colleges.

GRADING SYSTEM

Daily grades in each course of instruction at the Military Academy are awarded on a 30-point scale from 0.1 to 3.0, 3.0 equaling 100 percent and 2.0 being the lowest passing mark. A cadet's daily grades and cumulative record in each course are posted weekly on the class bulletin boards along with a report of all cadets deficient (average grade less than 2.0) in one or more subjects. Cadets attend classes in small sections of perhaps 12–15 students, all of whom have achieved substantially the same average grade in the subject. Approximately every four weeks the cadets are resectioned on the basis of their cumulative average grades in each subject.

A cadet's class rank (or order of merit) at year end and at graduation is determined by the total credits earned in all subjects in relation to the totals earned by each of his classmates. Maximum credits or weights assigned the various subjects are in proportion to the time allotted for instruction. A graduating cadet's choice of branch (Engineer, Artillery, Signal Corps, Infantry, etc.) is influenced by his class standing.

A report on the cadet's progress is mailed to his parents monthly throughout the academic year.

PROGRAM OF INSTRUCTION FOR ACADEMIC YEAR 1954–55

Class	Subject	Attendance	Length of period (minutes)
FOURTH (Freshman year).	Mathematics	Whole class daily	80
	Military topography and graphics.	One half class daily except Saturday.	120
	Physical education	One half class daily except Saturday.	45
		Whole class Saturday	45
	English	One half class daily except Saturday.	60
	Languages	One half class daily except Saturday.	60
	Tactics	Two attendances a week.	60
	Intramural athletics.	Two attendances a week (36 periods).	75
THIRD (Sophomore year).	Mathematics	One half class daily	80
	Physics	One half class daily	80
	Chemistry	One half class daily (91 periods).	80
	Languages	One half class daily	70
	English	One half class daily except Saturday (63 periods).	60
	Military psychology and leadership.	One half class daily except Saturday (27 periods).	60 or 120
	Military topography and graphics.	One half class daily except Saturday.	60 or 120
	Military hygiene	One half class daily except Saturday (15 periods).	60
	Tactics	Two attendances a week.	60
	Intramural athletics.	Two attendances a week. (36 periods).	75

Handwritten annotations:

$480 \ min/wk = 8 \ hrs$

$212 \ periods/yr$
$\times 80 \ min/per$
$16960 \ min/yr$
$= 282.7 \ hr.$
total

$45 \times 90 = 4050$
$45 \times 32 = 1440$
$75 \times 36 = 2700 \ min$

$\times 72$ (Tactics Fourth)
$\times 36$ (Intramural Fourth)

$\times 106 - 141.3 \ hr \ total$
$\times 106$
$\times 91$
$\times 106$
$\times 63$
90×27
90×90
$\times 15$
$\times 72$
$\times 36$

2700 min

36

Phys Ed $4050 + 1440 = 5490 \ min = 91.5 \ hrs$

Intram $2700 \times 3 = 8100 \ min = 135 \ hrs.$

Class	Subject	Attendance	Length of period (minutes)	
SECOND...... (Junior year).	Mechanics of fluids..	One half class daily....	80	106
	Mechanics of solids..	One half class daily....	80	106
	Electricity.........	Whole class daily (158 periods).	80	158
		One half class daily (27 periods).	80	27
	Military instructor training.	One half class daily (27 periods).	80	27
	Social sciences (geography, government, and history).	Whole class daily except Saturday.	60	90
	Tactics............	Two attendances a week.	60	72
	Intramural athletics.	Two attendances a week (36 periods).	75	36
FIRST........ (Senior year).	Military engineering.	One half class daily....	80	106
	History of military art.	One half class daily....	80	106
	Social sciences (economics and international relations).	One half class daily....	70	106
	Ordnance..........	One half class daily....	70	106
	English............	One half class daily except Saturday (27 periods).	60	27
	Law..............	One half class daily except Saturday.	60	90
	Military psychology and leadership.	One half class daily except Saturday (53 periods).	60	53
	Tactics.....	Two attendances a week.	60	72
	Intramural athletics.	Two attendances a week (36 periods).	75	36
	Military hygiene....	One attendance a week (5 periods).	60	5

2700 min (handwritten annotation next to SECOND class)

2700 min (handwritten annotation next to FIRST class)

The average number of periods available for the courses prescribed in table are as follows:

Whole class daily -- 212
Half class daily--- 106
Half class daily (except Saturday) ------------------------------------ 90
Two attendances a week-- 72

W. Point
1954-55

TYPICAL CADET SCHEDULES

FOURTH (FRESHMAN) CLASS

FIRST WEEK: *(handwritten: 80 min, 45, 60, 60, 75, 120)*

	7:55 A.M.	9:15 A.M.	9:20 A.M.	9:55 A.M.	10:15 A.M.	11:55 A.M.	1:00 P.M.	2:00 P.M.	2:15 P.M.	3:00 P.M.	3:15 P.M.	3:30 P.M.	4:45 P.M.
Mon	MATH		PHYS ED					ENGLISH		TACTICS			
Tue	MATH			MILITARY TOPOGRAPHY AND GRAPHICS				FOREIGN LANGUAGES					INTRAMURAL[1]
Wed	MATH		PHYS ED					ENGLISH					
Thu	MATH			MILITARY TOPOGRAPHY AND GRAPHICS				FOREIGN LANGUAGES					INTRAMURAL
Fri	MATH		PHYS ED					ENGLISH		TACTICS			
Sat	MATH		PHYS ED										

BLANK SPACES TO 3:15 P.M. REPRESENT CADET STUDY TIME; AFTER 3:15 P.M. CADET FREE TIME

SECOND WEEK: Except on Saturday, Military Topography and Graphics alternates with Physical Education; Saturday schedule remains constant.
English meets Tuesday, Thursday; Foreign Languages meets Monday, Wednesday, Friday.
Tactics alternates with Intramural.

NOTE: 1. During winter months, Free Time may replace voluntary Intramural.

THIRD (SOPHOMORE) CLASS

FIRST WEEK:

	7:55 A.M.	9:15 A.M.	9:55 A.M.	10:35 A.M.	10:45 A.M.	11:55 A.M.	1:00 P.M.	2:00 P.M.	2:15 P.M.	3:00 P.M.	3:15 P.M.	3:30 P.M.	4:45 P.M.
Mon	MATH			LAB[1]	CHEMISTRY[2]			ENGLISH[3]		TACTICS[4]			
Tue	PHYSICS	LAB[5]			FOREIGN LANG			MILITARY TOPOGRAPHY AND GRAPHICS					INTRAMURAL[6]
Wed	MATH				CHEMISTRY			ENGLISH					
Thu	PHYSICS				FOREIGN LANG			MILITARY TOPOGRAPHY AND GRAPHICS					INTRAMURAL
Fri	MATH				CHEMISTRY			ENGLISH		TACTICS			
Sat	PHYSICS				FOREIGN LANG								

SECOND WEEK: English alternates with M T and G.
Tactics alternates with Intramural.

NOTES: 1. Chemistry has twenty 2-hour laboratory periods.
2. Military Hygiene replaces Chemistry for last 15 periods of the year.
3. Military Psychology and Leadership replaces English for first 27 periods of the year.
4. Physical Education replaces Tactics for 30 periods.
5. Physics has eighteen 3-hour laboratory periods.
6. During winter months, Free Time may replace voluntary Intramural.

(handwritten calculations, right margin:)

6 × 80 = 480
4 × 45   180
          240
5 × 60   300
          120
          150

        1470 min

= 24.5 hrs

38

SECOND (JUNIOR) CLASS

FIRST WEEK:

Day	7:55 A.M.	8:15 A.M.	9:55 A.M.	10:35 A.M.	11:55 A.M.	1:00 P.M.	2:00 P.M.	2:15 P.M.	3:00 P.M.	3:15 P.M.	3:30 P.M.	4:45 P.M.
Mon	MECHANICS		LAB [1]	ELECTRICITY [2]			SOCIAL SCIENCES		TACTICS [3]			
Tue	MECHANICS	LAB [4]		ELECTRICITY			SOCIAL SCIENCES					INTRAMURAL [5]
Wed	MECHANICS			ELECTRICITY			SOCIAL SCIENCES					
Thu	MECHANICS			ELECTRICITY			SOCIAL SCIENCES					INTRAMURAL
Fri	MECHANICS			ELECTRICITY			SOCIAL SCIENCES		TACTICS			
Sat	MECHANICS			ELECTRICITY								

SECOND WEEK: Tactics alternates with Intramural.

NOTES: 1. Electricity has thirty-five 2-hour laboratory periods.
2. Military Instructor Training alternates with Electricity for last 27 periods of the year.
3. Physical Education replaces Tactics for 11 periods.
4. Mechanics has twenty-one 2-hour laboratory periods.
5. During winter months, Free Time may replace voluntary Intramural.

FIRST (SENIOR) CLASS

FIRST WEEK:

Day	7:55 A.M.	8:55 A.M.	9:55 A.M.	10:35 A.M.	11:55 A.M.	1:00 P.M.	2:00 P.M.	2:15 P.M.	3:00 P.M.	3:15 P.M.	3:30 P.M.	4:45 P.M.
Mon	ORDNANCE	LAB [1]			HISTORY OF MILITARY ART		LAW		TACTICS [3]			
Tue	SOCIAL SCIENCES				MILITARY ENGINEERING		TACTICS					INTRAMURAL [2]
Wed	ORDNANCE				HISTORY OF MILITARY ART		LAW					
Thu	SOCIAL SCIENCES				MILITARY ENGINEERING		TACTICS					INTRAMURAL
Fri	ORDNANCE				HISTORY OF MILITARY ART		LAW		TACTICS			
Sat	SOCIAL SCIENCES				MILITARY ENGINEERING							

SECOND WEEK: Tactics alternates with Law.
Tactics alternates with Intramural.

NOTES: 1. Ordnance has fourteen 2-hour laboratory periods.
2. During winter months, Free Time may replace voluntary Intramural.
3. English replaces Tactics for first 27 periods.

torical, geographical, and military material of current interest. Series of six or seven lectures on the culture of the people whose language is being studied. Frequent aural comprehension exercises. All work conducted in the foreign language. *124 hours (one hundred and six 70-minute periods).*

DEPARTMENT OF LAW

Professor: Col. C. W. West (Head of Department).
Associate Professor: Lt. Col. E. M. O'Connell.
Assistant Professor: Lt. Col. F. M. Sassé.
Instructors: Lt. Cols. J. Baker, W. C. Plott; Majs. J. J. Crimmins, R. M. Hancock, Jr.; Capts. E. L. Flaherty, Jr., J. T. Jones, J. A. Lighthall, J. J. Murphy, E. E. Welch.

First (Senior) Class

Assistant Professor: Lieutenant Colonel Sassé; *Instructors:* Lieutenant Colonels Baker, Plott; Majors Crimmins, Hancock; Captains Flaherty, Jones, Lighthall, Murphy, Welch.

a. *Elementary Law.*—A broad basic coverage of the fundamental legal principles of contract, tort, agency, real and personal property, negotiable instruments, banking, and claims for and against the Government. *21 hours.*

b. *Criminal Law.*—A study of substantive criminal law essential to the proper exercise of court-martial jurisdiction. *17 hours.*

c. *Constitutional Law.*—Important phases of constitutional authority, guarantees, and limitations with special emphasis on sources and extent of military power. *13 hours.*

d. *Evidence.*—The rules of evidence required in court-martial practice. *17 hours.*

e. *Military Law.*—Study and practical application of court-martial procedure. Participation in moot courts is featured. *22 hours.*

DEPARTMENT OF MATHEMATICS

Professors: Cols. W. W. Bessell, Jr. (Head of Department), C. P. Nicholas.
Associate Professors: Col. P. D. Calyer; Col. R. C. Yates.
Assistant Professors: Col. J. R. Richards; Lt. Cols. C. K. Charbonneau, J. P. Donohue, B. E. Huffman; Maj. J. R. Smith.
Instructors: Lt. Cols. D. E. Buchanan, R. H. Dettre, J. L. Fishback, C. D. Maynard, P. W. Ramee; Majs. J. C. Cockrill, L. G. Gamble, J. M. Hinman, D. L. Knoll, A. M. Maish, T. J. McGuire, G. V. Porter; Capts. G. F. Bond, R. T. Curtis, L. B. Genebach, B. S. Hanson, K. M. Hatch, W. R. Jarrell, G. W. Kays, D. L. Levy, J. B. MacWherter, M. E. Nolan, K. E. Sickafoose, C. E. Weyland; 1st Lts. L. P. Bayard, L. H. Cassler, R. T. O'Brien, W. C. Ross.

Note.—*Objectives and scope of the mathematics course.* The course in mathematics has two principal objectives: (1) mastery of reasoning processes, and (2) development of skill

in practical application of mathematics. The subjects taught are those fundamental branches of mathematics which are believed to have applicability to military situations and to advanced military study after graduation. The schedule is coordinated so that the cadet acquires the mathematical experience and facility needed for work in other departments. The teaching methods place a maximum of responsibility on the student and confront him with problems requiring original thinking.

Fourth (Freshman) Class

FOURTH CLASS MATHEMATICS. *Associate Professor:* Colonel Calyer; *Assistant Professors:* Lt. Cols. Charbonneau, Donohue, Huffman; Major Smith; *Instructors:* Lieutenant Colonel Ramee; Majors Cockrill, Hinman, Knoll, McGuire, Porter; Captains Bond, Curtis Genebach, Hanson, Hatch, Jarrell, Levy, MacWherter, Sickafoose, Weyland; First Lieutenants Bayard, Cassler, O'Brien, Ross.

a. *Algebra.*—A brief review of the fundamental algebra required for entrance to the Military Academy, followed by college algebra, including mathematical induction, the binomial theorem, theory of equations, inequalities, determinants, permutations and combinations, probability, partial fractions, and infinite series. *40 hours (thirty 80-minute periods).*

b. *Slide Rule.*—The theory and use of the several scales of the slide rule. *5 hours (four 80-minute periods).*

c. *Trigonometry.*—The course covers both plane and spherical trigonometry and stresses applications and analytical trigonometry. It includes logarithms and complex numbers. *52 hours (thirty-nine 80-minute periods).*

d. *Solid Geometry.*—In this course the theorems of limits are stressed and algebraic and trigonometric methods are used as well as the strictly geometric. *35 hours (twenty-six 80-minute periods).*

e. *Analytic Geometry.*—Plane and solid analytic geometry. The course includes first, second, and higher degree equations in two and three variables; rectangular, polar, cylindrical co-ordinates; conic sections, parameters, and parametric equations. *103 hours (seventy-seven 80-minute periods).*

f. *Calculus.*—An introduction to calculus. Functions, limits, differentiation and integration, with simple applications such as maxima and minima, related rates, areas, and moments of areas. *40 hours (thirty 80-minute periods).*

NOTE.—Seven extra periods are reserved for amplifying lessons.

Third (Sophomore) Class

THIRD CLASS MATHEMATICS.* *Associate Professor:* Colonel Yates; *Assistant Professor:* Colonel Richards; *Instructors:* Lieutenant Colonels Buchanan, Dettre, Fishback, Maynard; Majors Gamble, Maish; Captains Kays, Nolan.

*The cadets are separated according to ability into "upper" and "lower" groups of sections in December. The upper group progresses more rapidly and covers extra subject matter in calculus and differential equations during the year.

Math hours upper sect

Math hrs lower sect

75   80

15   31

32   33
4   4
126   148
248   248 ← 1st yr
364   396

Total math
hrs 1st 2 years

a. Calculus.—The course quickly reviews the fourth-class calculus course and then continues with a unified coverage of differential and integral calculus at a second-year engineering college level. *Upper, 75 hours (fifty-six 80-minute periods); lower, 89 hours (sixty-seven 80-minute periods).*

b. Differential Equations.—Upper and lower sections both cover standard types of first-order equations, integrating factors, certain higher order equations, and applications to harmonic motion. In addition, the upper sections cover other types of equations and important applications to physics and engineering. *Upper, 31 hours (twenty-three 80-minute periods); lower, 15 hours (eleven 80-minute periods).*

c. Statistics.—Upper and lower sections cover the same material. The course includes the elements of probability; the classification of data and computation of descriptive measures; binomial, normal, Poisson, and Chi-square distributions; statistical inference and applications of sampling techniques in the testing of hypotheses. *Upper, 32 hours (twenty-four 80-minute periods); lower, 33 hours (twenty-five 80-minute periods).*

Note.—Three extra periods are reserved for amplifying lessons.

DEPARTMENT OF MECHANICS

Professors: Cols. E. R. Heiberg (Head of Department), H. R. Fraser.
Associate Professors: Cols. W. H. Tetley, A. Higdon.
Assistant Professors: Col. D. W. Hassemer; Maj. F. S. Roop, Jr.; Capts. R. A. Barber, Jr.; T. D. Blazina, E. M. Lewiecki, W. R. Stumpe.
Instructors: Lt. Col. R. T. Batson; Majs. A. G. Dancy, V. H. Ellis, R. C. Sellers; Capts. F. C. Badger, E. G. Braun, Jr.; R. F. McAdoo, A. H. Quanbeck, S. White, Jr.; 1st. Lt. E. J. Heesacker.

Second (Junior) Class

Mechanics of Solids. *Associate Professor:* Colonel Higdon; *Assistant Professors:* Captains Lewiecki, Stumpe; *Instructors:* Major Ellis; Captains Braun, McAdoo, Quanbeck, White, 1st Lieutenant Heesacker.

a. Engineering Mechanics.—The principles of mechanics considered essential for an understanding of engineering, including the study of statics, kinematics, and kinetics. The statics portion of the course includes components of forces, moments, couples, dimensional equations, resultants, centroids, centers of gravity, centers of pressure, free body diagrams, equilibrium, trusses, friction, and moments of inertia of areas and masses. The kinematics portion of the course includes both absolute and relative motion of particles and rigid bodies including the study of displacement, velocity, and acceleration. Simple harmonic motion and a study of trajectories is also included. The kinetics portion of the course includes a study of the force, mass, and acceleration method, the work and kinetic energy method, and the impulse and momentum method for

212 whole
106 half
90 half exrs.
72 2

1954-55 w/Pt Minutes

	1st yr	2nd	3rd	4th

Math $80 \times 212 = 16960$ $80 \times 106 = 8480$

Mil top $120 \times 90 = 10,800$ 8 ... 6

Phy Ed $45 \times 90 = 4050$ 80×91

Eng $60 \times 90 = 5400$ 70×106

Lang $60 \times 90 = 5400$ $(\times 63$

Tact $60 \times 72 = 4320$

Intro $75 \times 36 = 2700$ $75 \times 36 = 2700$ $75 \times 36 = 2700$ $75 \times 36 = 2700$

Physics $\Sigma = 49630$ $80 \times 106 = 8480$

Chem $80 \times 91 = 7280$

Lang $70 \times 106 = 7420$

Eng $60 \times 63 = 3780$ $60 \times 27 = 1620$

Mil Psych $90 \times 27 = 2430$ $60 \times 53 = 3180$

Mil Tap $90 \times 90 = 8100$

Mil Hyg $60 \times 15 = 900$ 6×5 $60 \times 5 = 300$

Tac $60 \times 72 = 4320$ $60 \times 72 = 4320$ $60 \times 72 = 4320$

Mech Flu $\Sigma = 53890$ $80 \times 106 = 8480$

Mech Sol $80 \times 106 = 8480$

Elect $80 \times 158 = 12640$

Mil Instr Train $80 \times 27 = 2160$

Soc Sci $60 \times 90 = 5400$

Mil Eng $80 \times 106 = 8480$

Hist Mil $\Sigma = 44180$ $80 \times 106 = 8480$

Soc Sci $70 \times 106 = 8480$

Ord $70 \times 106 = 7420$

Law $60 \times 90 = 5400$

All 4 yrs total)

Minutes : 198,080

Hours :   3301

Math :   25 440 min
           424 hrs

$\Sigma = 50,380$