NOTES ET DOCUMENTS

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Cours universitaires.

Année 1927-1928.

ÉTATS-UNIS D'AMÉRIQUE

Brown University *(Providence, R.I.).* — R. G. D. Richardson and C. R. Adams: Introduction to advanced analysis. — J. D. Tamarkin and C. R. Adams: Seminary course. — A. A. Bennett: Advanced algebra. — J. D. Tamarkin: Theory of differential equations.

University of California (Berkeley). — Florian Cajori: Seminar on foundations of the calculus, I; Seminar on history of algebra, II; The teaching of mathematics in secondary schools, I. — B. A. Bernstein: Logic of algebra, I; Logic of Geometry, II; Seminar on foundations of mathematics, II. — M. W. Haskell: Line geometry, I; Theory of continuous groups. — D. N. Lehmer: Algebraic curves and surfaces, II; Theory of Numbers, II. — Pauline Sperry: Differential geometry, I; Projective differential geometry, II. — J. H. McDonald: Functions of a complex variable; Advanced analytic mechanics. — T. M. Putnam: Special analytic functions, I; Partial differential equations, II. — Frank Irwin: Integral equations, I; Galois theory of equations, II. — C. A. Noble: Calculus of variations.

University of Chicago. — E. H. Moore: General analysis I, II, III, IV, V; Seminar on foundations of mathematics. — H. E. Slaught: Differential equations; Definite integrals. — G. A. Bliss: Calculus of variations and Riemannian geometry; Partial differential equations; Algebraic functions; Boundary value problems in the calculus of variations; Thesis work in analysis. — L. E. Dickson: Topics in algebra; Topics in the theory of numbers; Advanced topics in algebra and the theory of numbers; Thesis work in algebra and theory of numbers. — E. P. Lane: Analytic projective geometry; Space curves and ruled surfaces; Solid analytic geometry; Differential geometry. — A. C. Lunn: Statistics and probability; Vector analysis; Dyadics and crystal physics; Fourier series and Bessel functions; Units and dimensions; Vector analysis in Riemannian-Einstein space. — M. I. Logsdon: Advanced analytic geometry; Algebraic geometry; Algebraic invariants. — W. D. Mac Millan: Analytic mechanics I, II; Celestial mechanics; Dynamics of rigid bodies. — L. M. Graves: Vectors, matrices and quaternions; Functions of a complex variable; Functions of a real variable. — R. W. Barnard: Limits and series. — Walter Bartky:

Modern theories of differential equations, I, II; Vector analysis; Electrodynamics; Quantum mechanics. In connection with all advanced courses students may register for Reading and Research.

University of Cincinnaty *(Ohio)*. — Harris HANCOCK: Advanced calculus; Theory of algebraic numbers; Thesis work in algebraic numbers. — Louis BRAND: Mechanics of deformable bodies; Electrodynamics. — C. N. MOORE: Theory of functions of a real variable; Course in reading and research. — R. E. HUNDLEY: Advanced technical mechanics. — C. A. GARABEDIAN: Elasticity, II; Thesis work in elasticity. — W. C. OSTERBROCK: The differential equations of engineering. — I. A. BARNETT: Integral equations. — Meyer SALKOVER: Quantum theory and atomic structure.

Columbia University *(New York)*. — T. S. FISKE: Elementary exposition of modern advances in mathematical science; Theory of functions. — E. KASNER: Seminar in differential geometry. — W. B. FITE: Differential equations. — J. F. RITT: Elliptic functions. — G. A. PFEIFFER: Principles and scope of geometry. — B. O. KOOPMAN: Mathematical theory of deformable media, with applications to hydro-dynamics and elasticity; Partial differential equations of mathematical physics.

Cornell University *(Ithaca)*. — J. I. HUTCHINSON: Theory of functions of a complex variable. — Virgil SNYDER: Projective geometry. — F. R. SHARPE: Hydro-dynamics and elasticity. — Arthur RANUM: Theory of numbers. — W. A. HURWITZ: Differential equations of mathematical physics. — W. B. CARVER: Theory of finite groups. — HUTCHINSON and CARVER: Elementary differential equations. — D. C. GILLESPIE: Principles of mechanics. — C. F. CRAIG: Modern higher algebra. — P. A. FRALEIGH: Advanced calculus. — B. F. KIMBALL: Differential geometry of curves and surfaces. — H. PORITSKY: Graphical and mechanical computations; Wave motion. — H. C. SHAUB: Advanced analytic geometry.

Harvard University *(Cambridge, Mass.)*. — W. F. OSGOOD: Functions of real variables, I. — J. L. COOLIDGE: Higher geometry. — E. V. HUNTINGTON: Mathematical methods in statistics. — G. D. BIRKHOFF: Problem of three bodies. — W. C. GRAUSTEIN: Introduction to modern geometry; Advanced calculus, I; Projective geometry. — Marston MORSE: Theory of potential II; Functions of real variables, II. — H. W. BRINKMAN: Advanced calculus, II; Theory of numbers. — H. M. STONE: Probability calculus, II; Theory of numbers. — M. H. STONE: Probability; Analytical theory of heat, problems in elastic vibrations; Expansion problems connected with ordinary differential equations. — M. S. DEMOS: Calculus of variations. — Professor MORSE will conduct a fortnightly seminar in the theory of functions.

Courses of research are offered by Professor OSGOOD in the theory of functions, by Professor COOLIDGE in geometry, by Professor HUNTINGTON in postulate-theory, by Professor BIRKHOFF in the theory of differential equations, by Professor GRAUSTEIN in geometry, by Profesosr MORSE in analysis situs, by Professor WALSH in analysis, by Professor BRINKMANN in the theory of groups, and by Dr. STONE in expansion problems.

University of Illinois *(Urbana)*. — E. J. TOWNSEND : Functions of a complex variable. — G. A. MILLER: Theory of groups. — J. B. SHAW: Linear algebra. — R. D. CARMICHAEL: Linear differential equations. —

A. EMCH: Algebraic geometry. — A. R. CRATHORNE: Theory of probability. — O. C. HAZLETT: Theory of numbers.

University of Iowa *(Iowa City I.A.).* — H. L. RIETZ: Actuarial theory; Statistics; Seminar in actuarial science and statistics. — E. W. CHITTENDEN: Advanced calculus; Functions of a real variable. — R. P. BAKER: Theoretical mechanics; Higher algebra. — J. F. REILLY: Partial differential equations; Mathematics of finance; Finite differences. — Roscoe WOODS: Advanced analytic geometry; Solid analytic geometry. — C. C. WYLIE: Celestial mechanics. — L. E. WARD: Functions of a complex variable. — N. B. CONKWRIGHT: Differential equations; Theory of equations.

Johns Hopkins University *(Baltimore, M.D.).* — F. MORLEY: Inversion A. COHEN: Theory of functions; Differential equations and advanced calculus. — F. D. MURNAGHAN: Hydro dynamics; Elasticity; Tensor analysis; New quantum mechanics. — J. R. MUSSELMAN: Projective geometry.

Massachusetts Institute of Technology *(Cambridge, Mass.).* — F. S. WOODS: Advanced calculus. — D. P. BARTLETT: Least squares and probability. — C. L. E. MOORE: Theoretical aeronautics; Advanced wing theory; Rigid Dynamics. — H. B. PHILLIPS: Vector analysis; Theory of the gyroscope. — G. RUTLEDGE: Theory of functions; Modern algebra. — D. J. STRUIK: Differential geometry. — N. WIENER: Fourier series and integral equations.

University of Michigan *(Ann. Arbor, Mich.).* — J. L. MARKLEY: Studies in the differential and integral calculus. — J. W. GLOVER: Theory of probability; Finite differences; Advanced mathematical theory of interest and life contingencies. — W. B. FORD: Advanced calculus with especial reference to Fourier series and harmonic analysis; Infinite series and products; Advanced differential equations. — L. C. KARPINSKI: Higher algebra; Teachers' seminary in mathematics; History of mathematics. — Peter FIELD: Advanced mechanics; Theory of the potential; Vector analysis. — T. R. RUNNING: Graphical methods; Empirical formulas; Differential equations for chemical engineers; Mathematical theory of heat conduction. — J. W. BRADSHAW: Descriptive geometry; Projective geometry. — T. H. HILDEBRANDT: Theory of functions of a real variable. — C. E. LOVE: Infinite processes; Differential equations. — H. C. CARVER: Mathematical theory of statistics; Advanced mathematical theory of interest and life contingencies. — L. A. HOPKINS: Celestial mechanics. — V. C. POOR: Elements of elasticity and hydrodynamics. — C. J. COE: Analytic mechanics; Integral equations. — L. J. ROUSE: Advanced calculus; Fourier series and harmonic analysis. — W. W. DENTON: Advanced calculus; Elements of mechanics; Partial differential equations of physics. — N. H. ANNING: Differential equations; Theory and use of mathematical instruments. — J. A. SHOHAT: Selected topics in analysis. — J. A. NYSWANDER: Higher algebra; Algebraic theory; Modern theory of differential equations. — G. Y. RAINICH: Quadratic forms and quadratic numbers; Theory of functions of a complex variable; Differential geometry; Mathematics of relativity. — R. L. WILDER: Analysis situs. — D. K. KAZARINOFF: Projective geometry for engineers; Calculus of variations; Mathematical theory of aerofoils; Advanced stability. — O. J. PETERSON: Solid analytic geometry. — S. E. FIELD: Differential equations.

Ohio State University *(Columbus).* — H. W. KUHN: Theory of equations; ordinary differential equations. — S. E. RASOR: Functions of a complex variable. — H. BLUMBERG: Introduction to modern mathematics; Point sets; Problems in analysis. — C. C. MORRIS: Theory of probability; Advanced statistics. — J. H. WEAVER: Advanced euclidean geometry; Advanced calculus. — C. C. MACDUFFEE: Theory of numbers; Theory of algebraic numbers; Linear algebras. — A. D. MICHAL: Fourier series; Partial differential equations; Calculus of variations. — Grace BAREIS: Synthetic projective geometry; Advanced analytic geometry. — C. T. BUMER: Finite differences; Actuarial theory; Vector analysis.

Princeton University *(N. J.).* — H. B. FINE: Theory of elimination (First term). — L. P. EISENHART: Differential geometry; Riemannian geometry. — O. VEBLEN: Seminary. — J. H. M. WEDDERBURN: Linear algebras (second term). — S. LEFSCHETZ: Analysis situs; Functions of a complex variable. — J. W. ALEXANDER: Functions of a real variable; Partial differential equations.

Rice Institute *(Housten, Tex.)* — G. C. EVANS: Differential and integral equations; General dynamics and relativity. — L. R. FORD: Theory of functions of a complex variable; Algebraic functions and their integrals. — H. E. BRAY: Theory of functions of a real variable. — A. H. COPELAND: Finance; Statistics; Probability.

University of Texas *(Austin).* — M. B. PORTER: Analytic functions. — R. L. MOORE: Point sets and continuous transformations; Research in point-set theory. — E. L. DODD: Infinite processes; Research in probability. — H. J. ETTLINGER: Theory of elasticity; Research in differential equations. — P. M. BATCHELDER: Relativity. — A. E. COOPER: Continuous groups.

Yale University *(New Haven. Conn.).* — James PIERPONT: Theory of functions of a complex variable; Differential geometry, I. — P. F. SMITH: Geometrical transformations and continuous groups. — E. W. BROWN: Advanced mechanics. — W. R. LONGLEY: Approximation methods. — W. A. WILSON: Functions of real variables. — E. J. MILES: Calculus of variations, I. — J. K. WHITTEMORE: Differential geometry, II. — J. I. TRACEY: Analytic geometry, I. — L. F. MOORE: Higher Algebra. — H. M. GEHMANN: Plane Analysis situs. — C. A. SHOOK: Potential theory and Laplace's equations; Hydromechanics.

ITALIE[1]

Bologna; *Università.* — BOMPIANI: Geometria delle equazioni differenziali, 3. — BORTOLOTTI (Enea): Fondamenti di Geometria e di Calcolo differenziale assoluto, 3. — BURGATTI: Potenziali — Elettromagnetismo — Teoria elettromagnetica della luce — Relatività, 3. — PINCHERLE: Funzioni analitiche — Serie di Dirichlet, 3. — TONELLI: Serie di funzioni analitiche e loro applicazioni alla fisica matematica, 3.

[1] Les cours fondamentaux, tels que Analyse Algébrique et infinitésimale, Géométrie analytique, descriptive, projective, Mécanique rationnelle, existant dans toute université, ne figurent pas dans cette liste.

Cagliari; *Università.* — Brusotti: Geometria proiettiva degli iperspazi e sua applicazione alla geometria sopra la curva algebrica, 3. — Giorgi: Dalla elettrodinamica di Coulomb e Poisson alla teoria di relatività — Calcolo tensoriale e sue applicazioni, 4½. — Madia (Giorgina): Fondamenti di teoria dei numeri e di geometria — Evoluzione della geometria non euclidea — Metodi d'insegnamento della matematica elementare, 3. — N. N.: Analisi superiore, 3.

Catania; *Università.* — Albanese: Geometria delle curve algebriche e integrali abeliani, 3. — Andreoli: Capitoli istituzionali di analisi, 3. — Caldonazzo: Teoria della relatività con speciale riguardo ai campi gravitazionali con elementi di simmetria, 3. — Nalli (Pia): Calcolo differenziale assoluto ed applicazioni, 3.

Firenze; *Università.* — Ciani: Le curve algebriche nel piano e nello spazio, 3. — Persico: Campi vettoriali con applicazioni all' idrodinamica e all' elettromagnetismo. — Spettroscopia e struttura dell' atomo, 3. — Sansone: Funzioni di variabile complessa — Teoria di Fuchs-Riemann delle equazioni differenziali lineari, 3.

Genova; *Università.* — Loria: Teoria dei gruppi di trasformazioni, 3. — Severini: Analisi funzionale, 3. — Straneo: Le equazioni integrali e integro-differenziali nella fisica — Le linee generali della teoria dei quanti, 5. — Togliatti: Capitoli scelti di analisi superiore, 3.

Messina; *Università.* — Calapso (Pasquale): Integrali delle funzioni algebriche e funzioni abeliane, 3. — Calapso (Renato): Geometria non euclidea e questioni didattiche, 3. — Crudeli: Elettrodinamica, 3. — Giambelli: La teoria generale dell' eliminazione e la geometria numerativa, 4.

Milano; *Università.* — Chisini: Geometria numerativa: metodi, problemi, applicazioni, 3. — Cisotti: Teoria dell' elasticità trattata in coordinate generali coll' impiego del Calcolo differenziale assoluto, 3. — Maggi: Teoria dell' equilibrio e del movimento elastico — Applicazioni, 3. — Vivanti: Teoria delle equazioni a derivate parziali del primo e del secondo ordine, 3.

Napoli; *Università.* — Marcolongo: Figure di equilibrio di una massa fluida in rotazione — Elementi di calcolo differenziale assoluto, 3. — Montesano: La teoria delle corrispondenze birazionali fra i punti di due piani, 3. — Pascal: Teoria delle funzioni analitiche, 3. — Picone: Capitoli istituzionali di analisi, 3. — Signorini: Meccanica analitica e teorie fisiche derivate, 3.

Padova; *Università.* — Comessatti: Integrali abeliani — Funzioni theta ed elementi di teoria delle funzioni abeliane, 3. — Laura: Meccanica analitica e teoria dei quanti, 3. — Silva: Problema degli n (e in particolare dei tre) corpi — Moto di rotazione della terra — Calcolo di orbite e cenno sul calcolo delle perturbazioni, 3. — Tonolo: Calcolo differenziale assoluto, 3. — Vitali: Geometria differenziale nello spazio hilbertiano, 3.

Palermo; *Università.* — Cipolla: Calcolo delle variazioni, 3. — Mignosi: Fondamenti logici della matematica — Grandezze e misure, 3. — Mineo: Configurazioni di equilibrio di una massa fluida rotante — Stabilità — Forma della Terra e dei pianeti, 3. — Piazzola Beloch (Margherita):

Teoria generale delle curve e superficie, 3. — STRAZZERI: Geometria differenziale, 3.

Pavia; *Università.* — BERZOLARI: Principi di geometria iperspaziale — Trasformazioni razionali fra due piani e due spazi, 3. — PALATINI: Calcolo differenziale assoluto, 3. — SERINI: Campi elettromagnetici variabili — Principi della teoria elettronica, 3.

Pisa; *Università.* — BERTINI: Complementi di geometria proiettiva, 3. — BIANCHI: Equazioni differenziali — Equazioni integrali — Principi del calcolo delle variazioni, 3. — DANIELE: Teoria del potenziale — Elettrostatica, 3. — LAZZARINO: Meccanica dei sistemi rigidi, semirigidi, continui con applicazione ai noti giroscopici ed allo spostamento del polo terrestre, 3. — ROSATI: Geometria delle serie lineari secondo i vari metodi — Applicazioni, 3.

Roma; *Università.* — ARMELLINI: Sistemi stellari, 3. — BISCONCINI: Approssimazioni numeriche, 3. — CASTELNUOVO: Calcolo delle probabilità, 3. — ENRIQUES: Geometria algebrica, 3. — FERMI: Teoria dell' atomo, 3. — VACCA: Storia della matematica greca — Origini del calcolo infinitesimale, 3. — VOLTERRA: Elasticità, 3. — Equazioni integro-differenziali e loro applicazioni, 3. — N. N.: Analisi superiore, 3.

Torino; *Università.* — BOGGIO: Idrodinamica, 3. — FANO: Teoria delle serie lineari sopra una curva algebrica, 3. — FUBINI: Teoria dei gruppi con particolare riguardo alla teoria dei gruppi continui, 3. — PEANO: Fondamenti della matematica, 3. — SOMIGLIANA: Statica e dinamica nei sistemi elastici, 3.

SUISSE

Semestre d'hiver; octobre 1927 *à mars* 1928.

Bâle; *Université.* — H. MOHRMANN: Diff. u. Integralrechn.; Algebra; Math. Seminar. — O. SPIESS: Analyt. Geometrie; Elem. Mathematik; Geschichte der Mathematik. — Th. NIETHAMMER: Sphärische Astronomie; Astronomische Uebgn. — R. FLATT: Angew. Analysis; Algebra. — M. KNAPP: Populäre Astronomie; Grundlagen des Kalenders; Finsternisperioden.

Berne; *Université.* — L. CRELIER: Integralrechn. mit Uebgn.; Diff.-gleichgn.; Zahlentheorie; Mathem. Seminar. — F. GONSETH: Analysis situs; Geometrisches Seminar; Analyt. Geometrie; Einl. in die Differentialrechnung. — MICHEL: Die Galoissche Theorie. — MAUDERLI: Astronomie. — JOSS: Darst. Geometrie. — MOSER: Versicherungsrechnung; Seminar. — BOHREN: Wahrscheinlichkeitsrechnung.

Fribourg; *Université.* — BAYS: Diff. u. Integralrechnung; Funktionentheorie; Th. de la relativité. — X.: Géométrie analytique; Algèbre supérieure; Exercices. — JOYE: Physique mathématique.

Genève; *Université.* — H. FEHR: Eléments de mathém. sup.; Conférences d'algèbre et de géométrie; Exercices; Sém. de mathém.; Géométrie supérieure. — R. WAVRE: Calcul diff. et intégral; Mécanique rationnelle; Exercices; Calcul tensoriel. — D. MIRIMANOFF: Calcul des probabilités; Théorie

des fonctions analytiques. — R. GAUTIER: Astronomie générale. — *Privat-docents:* F. LÉVY: Th. des groupes; Mathématiques financières. — G. TIERCY: Mécanique céleste.

Lausanne; *Université.* — G. DUMAS: Calcul diff. et intégral; Exercices. — M. X.: Géométrie descriptive; Géométrie analytique; Géométrie de position. — B. MAYOR: Mécanique rationnelle; Physique mathém. — L. MAILLARD: Astronomie; Mathém. générales. — D. MIRIMANOFF: Théorie des fonctions. — J. CHUARD: Calcul des probabilités. — *Privat-docent:* F. VANEY: Géométrie Cayleyenne.

Neuchâtel; *Université.* — L. G. DU PASQUIER: Calcul diff. et intégral; Calcul des variations; Séries trigonom.; Equat. diff.; Théorie des nombres; Groupes de transformations; Science actuarielle; Le principe de la relativité; Séminaire. — L. GABEREL: Géométrie analyt.; Géométrie descript. et projective. — G. JUVET: Géodésie; Astronomie; Exercices. — A. JAQUEROD: Mécanique rationnelle. — *Privat-docent:* H. ORY: Déterminants fonctionnels.

Zurich; *Université.* — R. FUETER: Einführg. in mathem. Behandlung d. Naturwissenschaften; Funktionentheorie; Seminar. — SPEISER: Diff. u. Integralrech.; Geom. Theorie der alg. Gleichungen; Seminar. — FINSLER: Darst. Geometrie; Grundlagen der Geometrie. — W. BRUNNER: Astronomie.

Zurich; *Ecole Polytechnique Fédérale, section normale.* — HIRSCH: Höh. Mathem. mit Uebgn. — FRANEL: Mathem. sup. avec exercices. — SAXER: Darstellende Geometrie mit Uebgn. Nicht euklidische Geometrie. — KOLLROS: Géométrie descript. avec exercices. — PÓLYA: Einführg. in die Analysis reeller Grössen; Analyt. Geometrie; Funktionnentheorie; Seminar. — MEISSNER: Mechanik; Ausgew. Kapitel. — PLANCHEREL: Algèbre; Equations intégrales; Seminar. — H. WEYL: Funktionentheorie mit Anwendungen; Kontinuierliche Gruppen u. ihre Invarianten. — DEBYE: Molekularkräfte. — SCHERRER: Atombau. — BAESCHLIN: Vermessungskunde; Ausgleichungsrechnung. — BRUNNER: Astronomie. — AMBERG: Didaktik der Math. auf der Mittelschule. — MARCHAND: Einführung in die Versicherungsmathematik.

Cours libres. — BEYEL: Rechenschieber; Darst. Geometrie. — KIENAST: Potentialtheorie.