ALGEBRAIC GEOMETRY 2022-2023

ECTURE 2 15 October 2022 9:00 - 11:00 Room 134 (SISSA) Theory Stalks, compatible germs. Surjectivity of maps of sheaves. Characterisation of isomorphisms via stalks (prod). Existence of sheaffication (prod). ECTURE 4 15 October 2022 9:00 - 11:00 Room 136 (SISSA) Theory Sylperapers. Exact sequences of sheaves. Defining shead apaces, their morphisms. Closed immersions = lideal sheaves. ECTURE 5 20 October 2022 16:00 - 18:00 Room 136 (SISSA) Theory Sylperapers. Exact sequences of sheaves. Defining shead spaces, their morphisms. Closed immersions = lideal sheaves. ECTURE 5 25 October 2022 16:00 - 18:00 Room 108 (SISSA) Theory Sylperapers. Exact sequences of sheaves. Defining of specify. ECTURE 6 25 October 2022 16:00 - 18:00 Room 108 (SISSA) Theory Sylperapers. Exact sequences of sheaves. Defining of specify. ECTURE 8 27 October 2022 16:00 - 18:00 Room 108 (SISSA) Theory Sylperapers. Exact sequences of specify. ECTURE 9 10 November 2022 16:00 - 18:00 Room 108 (SISSA) Theory Sylperapers. ECTURE 10 10 November 2022 16:00 - 18:00 Room 108 (SISSA) Theory Sylperapers. ECTURE 11 10 November 2022 16:00 - 18:00 Room 108 (SISSA) Theory Sylperapers. ECTURE 12 10 November 2022 16:00 - 18:00 Room 108 (SISSA) Theory Sylperapers. ECTURE 13 10 November 2022 16:00 - 18:00 Room 108 (SISSA) Theory Sylperapers. ECTURE 14 10 November 2022 16:00 - 18:00 Room 108 (SISSA) Theory Sylperapers. ECTURE 15 10 November 2022 16:00 - 18:00 Room 108 (SISSA) Theory Sylperapers. ECTURE 16 10 November 2022 16:00 - 18:00 Room 108 (SISSA) Theory Sylperapers. ECTURE 16 10 November 2022 16:00 - 18:00 Room 108 (SISSA) Theory Sylperapers. ECTURE 16 10 November 2022 16:00 - 18:00 Room 108 (SISSA) Theory Sylperapers. ECTURE 16 10 November 2022 16:00 - 18:00 Room 108 (SISSA) Theory Sylperapers. ECTURE 16 10 November 2022 16:00 - 18:00 Room 108 (SISSA) Theory Sylperapers. ECTURE 16 10 November 2022 16:00 - 18:00 Room 108 (SISSA) Theory Sylperapers. ECTURE 16 10 November 2022 16:00 - 18:00 Room 108 (SISSA) Theory Sylperapers. ECTURE 16 10 N		DAY	TIME	WHERE	TYPE	TOPICS
ECTURE 4 18 October 2022 9:60 - 11:00 Room 136 (SISSA) Theory Were image sheat and the adjunction with direct image sheat. Supports of sheaves and sections. ECTURE 6 18 October 2022 16:00 - 18:00 Room 136 (SISSA) Theory Were image sheat and the adjunction with direct image Locally image disposes, their morphisms. Closed immersions = ideal sheaves. ECTURE 7 25 October 2022 9:00 - 11:00 Room 136 (SISSA) Theory Localisation of a module. Structure sheaf of SpeciA, Delinition of affine schemes. Schemes. Quasicompact, connected, irreducible schemes. ECTURE 8 25 October 2022 16:00 - 18:00 Room 036 (SISSA) Theory Localisation of a module. Structure sheaf of SpeciA, Delinition of affine schemes. Sohe image sheat and the adjunction of the schemes and schemes. Assertion of the schemes. Sohe image sheat and the adjunction of affine schemes. Schemes. Quasicompact, connected, irreducible schemes. ECTURE 9 25 October 2022 16:00 - 18:00 Room 036 (SISSA) Theory Localisation of a module. Structure sheaf of SpeciA, Delinition of affine schemes. Sohe image sheat seal deline of local ring at a maximal ideal of a ring. ECTURE 9 8 November 2022 16:00 - 18:00 Room 036 (SISSA) Theory More on structure sheaf of SpeciA, Delinition of affine schemes. Sohe image sheat seal with the schemes and schemes. New a unique genetic point. Examples of affine (and not affine) schemes and moderns. Examples. ECTURE 10 November 2022 16:00 - 18:00 Room 036 (SISSA) Theory More on structure sheaf of SpeciA, Irreducible schemes have a unique genetic point. Examples of affine (and not affine) schemes and schemes. Projective Aschemes. Projec	LECTURE 1	11 October 2022	16:00 - 18:00	Room 134 (SISSA)	Theory	Presheaves, sheaves, morphisms, constant presheaves, sheaf condition via equalisers.
Recruited 18 October 2022 18:00 18:00 Room 128 (ISISA) Theory Inverse image sheaf and the adjunction with direct image. Locally ringed spaces, their morphisms. Closed immerations = ideal sheaves.	LECTURE 2	13 October 2022	16:00 - 18:00	Room 134 (SISSA)	Theory	Stalks, compatible germs. Surjectivity of maps of sheaves. Characterisation of isomorphisms via stalks (proof). Existence of sheafification (proof).
ECTURE 5 20 October 2022 16:00 - 18:00 Room 137 (SISSA) Theory Spectrum of a ring, Zariski topology, Closed points. First examples of Spec(A). Definition of affine schemes. Schemes. Quasicompact, connected, irreducible schemes. ECTURE 7 25 October 2022 16:00 - 18:00 Room 005 (SISSA) Theory Definition of affine schemes and schemes. Morphisms of affine schemes. Spec is an equivalence Rings*0p -> Aff. ECTURE 8 8 November 2022 16:00 - 18:00 Room 005 (SISSA) Theory Definition of affine schemes have a unique genetic point. Examples of affine (and not affine) schemes and morphisms. ECTURE 10 November 2022 16:00 - 18:00 Room 005 (SISSA) Theory Definition of affine schemes have a unique genetic point. Examples of affine (and not affine) schemes and morphisms. Schemes of proofs, Projective space over a ring. ECTURE 11 November 2022 16:00 - 18:00 Room 005 (SISSA) Theory Proj of a graded A-algebra and its scheme structure. Second definition of projective space. Projective A-schemes. Projective varieties of the schemes and schemes. Administration of projective space. Projective A-schemes. Projective varieties of the schemes and schemes and schemes structure. Second definition of projective space. Projective varieties of the scheme and morphisms. Ectural in the scheme in the scheme structure. Second definition of projective space. Projective A-schemes. Projective varieties of the scheme in th	LECTURE 3	18 October 2022	9:00 - 11:00	Room 136 (SISSA)	Theory	Skyscrapers. Exact sequences of sheaves. Defining sheaves on basic open sets. Direct image sheaf. Supports of sheaves and sections.
LECTURE 6 25 October 2022 26 00 - 11:00 Room 136 (SISSA) Theory Room 136 (SISS	LECTURE 4	18 October 2022	16:00 - 18:00	Room 128 (SISSA)	Theory	Inverse image sheaf and the adjunction with direct image. Locally ringed spaces, their morphisms. Closed immersions = ideal sheaves.
ECTURE 7 25 October 2022 16:00 - 18:00 Room 005 (SISSA) Theory Definition of affine schemes and schemes. Morphisms of affine schemes. Speci is an equivalence Ringar's op — Aff.	LECTURE 5	20 October 2022	16:00 - 18:00	Room 137 (SISSA)	Theory	Spectrum of a ring, Zariski topology. Closed points. First examples of Spec(A).
ECTURE 8 27 October 2022 16:00 - 18:00 Room 005 (SISSA) Theory Definition of affine schemes and schemes. Morphisms of affine schemes. Spec is an equivalence Rings*op -> Aff. ECTURE 10 8 November 2022 16:00 - 18:00 Room 005 (SISSA) Theory Schemes over a base. Hom/c/y is a sheaf. Morphisms to an affine scheme (adjunction), Gluciang schemes (no proof), Projective space over a ring. ECTURE 11 10 November 2022 16:00 - 18:00 Room 005 (SISSA) Theory Schemes over a base. Hom/c/y is a sheaf. Morphisms to an affine scheme (adjunction), Gluciang schemes (no proof), Projective space over a ring. ECTURE 12 16 November 2022 16:00 - 18:00 Room 005 (SISSA) Theory Proj of a graded A-algebra and its scheme structure. Second definition of projective space. Projective A-schemes, Projective varieties. ECTURE 13 22 November 2022 16:00 - 18:00 Room 134 (SISSA) Theory More on the twisted cubic. (De)homogeneisation. Affine cones. Irreducible components. Locality lemma. Noetherian schemes. Examples. ECTURE 14 29 November 2022 16:00 - 18:00 Room 134 (SISSA) Theory Schemes and rings and main properties. Dimension theory for varieties. Krull's theorem (no proof) and consequences. ECTURE 15 29 November 2022 16:00 - 18:00 Room 005 (SISSA) Theory Schemes and rings and main properties. Dimension theory for varieties. Krull's theorem (no proof) and consequences. ECTURE 16 29 November 2022 16:00 - 18:00 Room 005 (SISSA) Theory Schemes and rings and main properties. Dimension theory for varieties. Krull's theorem (no proof) and consequences. ECTURE 16 10 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory Morphisms: (locally) finite byte, (quasi)separated, proper. Criteria for separatedness. Valuative criteria (no proof). Functions on proper k-schemes. ECTURE 17 10 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory Norphisms: (locally) finite byte, (quasi)separated, proper. Criteria for separatedness. Valuative criteria (no proof). Functions on proper k-schemes. ECTURE 27 10 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Veil and C	LECTURE 6	25 October 2022	9:00 - 11:00	Room 136 (SISSA)	Theory	Localisation of a module. Structure sheaf of Spec(A). Definition of affine schemes. Schemes. Quasicompact, connected, irreducible schemes.
ECTURE 9 8 November 2022 16:00 - 18:00 Room 036 (SISSA) Theory Schemes over a base. Horn(-x) is a sheef. Morphisms to an affine scheme (no proof). Projective space over a ring. ECTURE 11 10 November 2022 16:00 - 18:00 Room 005 (SISSA) Theory Schemes over a base. Horn(-x) is a sheef. Morphisms to an affine scheme (adjunction). Glusing schemes (no proof). Projective space over a ring. ECTURE 12 15 November 2022 16:00 - 18:00 Room 005 (SISSA) Theory Proj of a graded A-algebra and its scheme structure. Second definition of projective space. Projective A-schemes. Projective varieties. ECTURE 13 2 November 2022 16:00 - 18:00 Room 036 (SISSA) Theory More on the twisted cubic. (De)homogeneisation. Affine cones. Irreducible components. Locality lemma. Noetherian schemes. Examples. ECTURE 14 24 November 2022 16:00 - 18:00 Room 036 (SISSA) Theory More on the twisted cubic. (De)homogeneisation. Affine cones. Irreducible components. Locality lemma. Noetherian schemes. Examples. ECTURE 14 29 November 2022 16:00 - 18:00 Room 036 (SISSA) Theory Dienesion of schemes and rings and main properties. Dimension theory for varieties. Krulls theorem (no proof) and consequences ECTURE 15 29 November 2022 16:00 - 18:00 Room 036 (SISSA) Theory Base change. Properties stable under base change, local on the target. The diagonal. Separated morphisms. Affine morphisms are separated. ECTURE 18 6 December 2022 16:00 - 18:00 Room 036 (SISSA) Theory Base change. Properties dileventers. Dimension of fibres. There are no morphisms P^n -> P^1 if n > 1. ECTURE 19 13 December 2022 16:00 - 18:00 Room 036 (SISSA) Theory Morphisms: (locally) finite type, (quasi)separated, proper. Criteria for separatedeness. Valuative criteria (no proof). Functions on proper k-schemes. ECTURE 29 10 January 2023 16:00 - 18:00 Room 036 (SISSA) Theory O X-modules, (quasi)certerial sheaves on affine and projective schemes. Maps to P^n A as invertible sheaves + generating sections. ECTURE 29 (PHD) 13 January 2023 16:00 - 18:00 Room 036 (SISSA) Theory O X-modules, (LECTURE 7	25 October 2022	16:00 - 18:00	Room 005 (SISSA)	Exercises	Local ring of Spec(A) at at prime ideal. Connectedness and idempotents. Localisation. Residue field of local ring at a maximal ideal of a ring.
ECTURE 10 8 November 2022 16:00 - 18:00 Room 005 (SISSA) Theory Projective space over a base. Hom(-,Y) is a sheat. Morphisms to an affine scheme (adjunction). Glueing schemes (no proof). Projective space over a ring. ECTURE 11 10 November 2022 16:00 - 18:00 Room 005 (SISSA) Theory Proj of a graded A-algebra and its scheme structure. Second definition of projective space. Projective A-schemes. Projective varieties ECTURE 13 22 November 2022 16:00 - 18:00 Room 005 (SISSA) Theory More on the twisted cubic. (Delphomogeneisation. Affine cones. Irreducible components. Locality lemma. Noetherian schemes. Examples. ECTURE 15 29 November 2022 9:00 - 11:00 Room 134 (SISSA) Theory Projective space over a ring. ECTURE 16 29 November 2022 16:00 - 18:00 Room 005 (SISSA) Theory Projective space over a ring. ECTURE 17 1 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory Projective space over a ring. ECTURE 18 6 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory Projective space over a ring. ECTURE 19 13 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory Morphisms: (locally finite type, (quas))separated, proper Circla for separated morphisms. Affine morphisms are separated. ECTURE 19 13 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory Regular schemes. Jacobian criterion. Flat, smooth, unramified, étale morphisms. Infinitesimal lifting criterion with examples. ECTURE 20 15 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory Regular schemes. Jacobian criterion. Flat, smooth, unramified, étale morphisms. Infinitesimal lifting criterion with examples. ECTURE 21 10 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Room 005 (SISSA) Theory Regular schemes shades and locally free sheaves. ECTURE 22 (FHD) 17 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory R	LECTURE 8	27 October 2022	16:00 - 18:00	Room 005 (SISSA)	Theory	Definition of affine schemes and schemes. Morphisms of affine schemes. Spec is an equivalence Rings^op -> Aff.
ECTURE 11 18 November 2022 16:00 - 18:00 Room 005 (SISSA) Theory Proj of a graded A-algebra and its scheme structure. Second definition of projective Aschemes. Projective varieties ECTURE 12 18 November 2022 16:00 - 18:00 Room 005 (SISSA) Exercises The rational normal curve in P*o. Veronese embedding. Plane conics, twisted cubic. ECTURE 13 22 November 2022 16:00 - 18:00 Room 134 (SISSA) Theory More on the twisted cubic. (De)homogeneisation. Affine cones. Irreducible components. Locality lemma. Noetherian schemes. Examples. ECTURE 14 24 November 2022 16:00 - 18:00 Room 134 (SISSA) Theory Reducedness is a local property. Reduced schemes. Reduced induced closed subscheme structure. Integral scheme = reduced + irreducible. ECTURE 15 29 November 2022 16:00 - 18:00 Room 136 (SISSA) Theory Dimension of schemes and rings and main properties. Dimension theory for varieties. Krull's theorem (no proof) and consequences ECTURE 16 19 November 2022 16:00 - 18:00 Room 005 (SISSA) Theory Dimension of schemes and rings and main properties. Dimension theory for varieties. Krull's theorem (no proof) and consequences ECTURE 16 19 Locember 2022 16:00 - 18:00 Room 005 (SISSA) Exercises Affine and projective dimension theorems. Dimension of thres. There are no morphisms. Affine morphisms are separated. ECTURE 19 13 December 2022 16:00 - 18:00 Room 134 (SISSA) Theory Morphisms: (locally) finite type, (quasi)separated, proper. Criteria for separatedness. Valuative criteria (no proof). Functions on proper k-schemes. ECTURE 20 15 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory O.X-modules, (quasi)coherent sheaves and locally free sheaves. ECTURE 21 10 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Veroduses, (quasi)coherent sheaves and locally free sheaves. ECTURE 25 (PHD) 17 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Veroduses, (quasi)coherent sheaves and locally free sheaves. ECTURE 26 (PHD) 19 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Veroduses Schemes Schemes Schemes Schemes Schemes Age and vanishi	LECTURE 9	8 November 2022	9:00 - 11:00	Room 136 (SISSA)	Theory	More on structure sheaf of Spec(A). Irreducible schemes have a unique generic point. Examples of affine (and not affine) schemes and morphisms.
ECTURE 12 15 November 2022 16:00 - 18:00 Room 005 (SISSA) Exercises The rational normal curve in P^e. Veronese embedding. Plane conics, twisted cubic. ECTURE 13 22 November 2022 16:00 - 18:00 Room 134 (SISSA) Theory More on the twisted cubic. (De)homogeneisation. Affine cones. Irreducible components. Locality lemma. Noetherian schemes. Examples. ECTURE 14 24 November 2022 16:00 - 18:00 Room 134 (SISSA) Theory Reducedness is a local property. Reduced schemes. Reduced induced closed subscheme structure. Integral scheme = reduced + irreducible. ECTURE 15 29 November 2022 99.00 - 11:00 Room 136 (SISSA) Theory Dimension of schemes and rings and main properties. Dimension theory for varieties. Krull's theorem (no proof) and consequences. ECTURE 17 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory Dimension of schemes and rings and main properties. Dimension theory for varieties. Krull's theorem (no proof) and consequences. ECTURE 18 6 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory Morphisms: (locally) finite type, (quasi)separated, proper. Criteria for separated morphisms P^n -> P^1 if n > 1. ECTURE 19 13 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory Morphisms: (locally) finite type, (quasi)separated, proper. Criteria for separatedness. Valuative criteria (no proof). Functions on proper k-schemes. ECTURE 20 15 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory November 2022 16:00 - 18:00 Room 005 (SISSA) Theory O. X-modules, (quasi)coherent sheaves on affine and projective schemes. Maps to P^n. A as invertible sheaves + generating sections. ECTURE 21 10 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Well and Cartier divisors. Relation with the Picard group. ECTURE 25 (PHD) 12 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Well and Cartier divisors. Serie's theorems: affine and projective schemes. Algo them and projective schemes and vanishing of H* above the Krull dimension. ECTURE 26 (PHD) 19 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Projective morphisms. Serie's theorems: af	LECTURE 10	8 November 2022	16:00 - 18:00	Room 005 (SISSA)	Theory	Schemes over a base. Hom(-,Y) is a sheaf. Morphisms to an affine scheme (adjunction). Glueing schemes (no proof). Projective space over a ring.
22 November 2022 16:00 - 18:00 Room 134 (SISSA) Theory Reducedness is a local property. Reduced schemes. Reduced induced closed subscheme structure. Integral scheme = reduced + irreducible. ECTURE 16 29 November 2022 16:00 - 18:00 Room 136 (SISSA) Theory Dimension of schemes and rings and main properties. Dimension theory for varieties. Krull's theorem (no proof) and consequences ECTURE 16 29 November 2022 16:00 - 18:00 Room 005 (SISSA) Theory Dimension of schemes and rings and main properties. Dimension theory for varieties. Krull's theorem (no proof) and consequences ECTURE 17 1 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory Base change, Properties stable under base change, local on the target. The diagonal. Separated morphisms. Affine morphisms are separated. ECTURE 18 6 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory Morphisms: (locally) finite type, (quasi)separated, proper. Criteria for separatedeness. Valuative criteria (no proof). Functions on proper k-schemes. ECTURE 29 13 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory Regular schemes. Jacobian criterion. Flat, smooth, unramified, étale morphisms. Infinitesimal lifting criterion with examples. ECTURE 21 10 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory O_X-modules, (quasi)coherent sheaves on affine and projective schemes. Maps to P^n_A as invertible sheaves + generating sections. ECTURE 24 11 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Weil and Cartier divisors. Relation with the Picard group. ECTURE 25 (PHD) 17 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Weil and Cartier divisors. Polation with the Picard group. ECTURE 26 (PHD) 19 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Projective morphisms. Serie's theorems: affine schemes and vanishing cohomology. Cohomology of projective schemes. Genus-degree formula (proof). ECTURE 26 (PHD) 19 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Projective morphisms. Serie's theorems: affine schemes and vanishing cohomology. Cohomology of projective schemes. Genus	LECTURE 11	10 November 2022	16:00 - 18:00	Room 005 (SISSA)	Theory	Proj of a graded A-algebra and its scheme structure. Second definition of projective space. Projective A-schemes. Projective varieties
LECTURE 14 24 November 2022 16:00 - 18:00 Room 134 (SISSA) Theory Beducedness is a local property. Reduced schemes. Reduced induced closed subscheme structure. Integral scheme = reduced + irreducible. LECTURE 15 29 November 2022 9:00 - 11:00 Room 136 (SISSA) Theory Dimension of schemes and rings and main properties. Dimension theory for varieties. Krull's theorem (no proof) and consequences LECTURE 16 29 November 2022 16:00 - 18:00 Room 005 (SISSA) Theory Base change, Properties stable under base change, local on the target. The diagonal. Separated morphisms. Affine morphisms are separated. LECTURE 17 1 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory Morphisms: (locally) finite type, (quasi)separated, proper. Criteria for separatedness. Valuative criteria (no proof). Functions on proper k-schemes. LECTURE 20 15 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory Regular schemes. Jacobian criterion. Flat, smooth, unramified, date morphisms. Infinitesimal lifting criterion with examples. LECTURE 21 10 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory O.X-modules, (quasi)sopherent sheaves on affine and projective schemes. Maps to P^n_A as invertible sheaves + generating sections. LECTURE 22 10 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Weil and Cartier divisors. Relation with the Picard group. LECTURE 24 11 January 2023 14:00 - 16:00 Room 136 (SISSA) Exercises Blowups: definitions, main properties. Blowup of zero section of affine space over a ring. LECTURE 25 (PHD) 17 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Cohomology of sheaves via injective resolutions. Flasque sheaves. Grothendieck's theorem on vanishing of H* above the Krull dimension. LECTURE 26 (PHD) 19 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Projective morphisms. Serie's theorems: affine schemes and vanishing cohomology. Cohomology of projective schemes. Genus-degree formula (proof). LECTURE 28 (PHD) 24 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Projective morphisms. Serie's theorems: affine schemes and	LECTURE 12	15 November 2022	16:00 - 18:00	Room 005 (SISSA)	Exercises	The rational normal curve in P^e. Veronese embedding. Plane conics, twisted cubic.
ECTURE 15 29 November 2022 9:00 - 11:00 Room 136 (SISSA) Theory Dimension of schemes and rings and main properties. Dimension theory for varieties. Krull's theorem (no proof) and consequences ECTURE 16 29 November 2022 16:00 - 18:00 Room 005 (SISSA) Theory Base change, Properties stable under base change, local on the target. The diagonal. Separated morphisms. Affine morphisms are separated. ECTURE 18 6 December 2022 16:00 - 18:00 Room 005 (SISSA) Exercises Affine and projective dimension theorems. Dimension of fibres. There are no morphisms P^n -> P^1 if n > 1. ECTURE 18 13 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory Morphisms: (locally) finite type, (quasi)separated, proper. Criteria for separatedness. Valuative criteria (no proof). Functions on proper k-schemes. ECTURE 20 15 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory Regular schemes. Jacobian criterion. Flat, smooth, unramified, étale morphisms. Infinitesimal lifting criterion with examples. ECTURE 21 10 January 2022 16:00 - 18:00 Room 005 (SISSA) Exercises Exercises on coherent sheaves on affine and projective schemes. Maps to P^n. A as invertible sheaves + generating sections. ECTURE 24 12 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Weil and Cartier divisors. Relation with the Picard group. ECTURE 24 12 January 2023 16:00 - 18:00 Room 005 (SISSA) Exercises Blowups: definitions, main properties. Diove 18:00 Projective schemes and vanishing cohomology. Cohomology of projective schemes. Genus-degree formula (proof). ECTURE 26 (PHD) 17 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Projective morphisms. Serre's theorems: affine schemes and vanishing cohomology. Cohomology of projective schemes. Genus-degree formula (proof). ECTURE 28 (PHD) 24 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Projective morphisms. Serre's theorems: affine schemes and vanishing cohomology. Cohomology of projective schemes. Genus-degree formula (proof). ECTURE 29 (PHD) 24 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Projective morphism	LECTURE 13	22 November 2022	16:00 - 18:00	Room 134 (SISSA)	Theory	More on the twisted cubic. (De)homogeneisation. Affine cones. Irreducible components. Locality lemma. Noetherian schemes. Examples.
ECTURE 16 29 November 2022 16:00 - 18:00 Room 006 (SISSA) Theory Base change. Properties stable under base change, local on the target. The diagonal. Separated morphisms. Affine morphisms are separated. ECTURE 17 1 December 2022 16:00 - 18:00 Room 005 (SISSA) Exercises Affine and projective dimension theorems. Dimension of fibres. There are no morphisms P^n -> P^1 if n > 1. ECTURE 18 6 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory Morphisms: (locally) finite type, (quasi)separated, proper. Criteria for separatedness. Valuative criteria (no proof). Functions on proper k-schemes. ECTURE 19 13 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory Regular schemes. Jacobian criterion. Flat, smooth, unramified, étale morphisms. Infinitesimal lifting criterion with examples. ECTURE 20 15 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory O_X-modules, (quasi)coherent sheaves on affine and projective schemes. Maps to P^n_A as invertible sheaves + generating sections. ECTURE 21 10 January 2023 16:00 - 18:00 Room 005 (SISSA) Exercises Exercises on coherent sheaves and locally free sheaves. ECTURE 23 11 January 2023 16:00 - 18:00 Room 005 (SISSA) Exercises Blowups: definitions, main properties. Blowup of zero section of affine space over a ring. ECTURE 25 (PHD) 17 January 2023 16:00 - 18:00 Room 005 (SISSA) Exercises Blowups: more examples. 3 points in P^2. Intersection form on a surface (axiomatically) -> E^2 = -1 formula and consequences. ECTURE 26 (PHD) 19 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Projective morphisms. Serre's theorems: affine schemes and vanishing cohomology. Cohomology of projective schemes. Genus-degree formula (proof). ECTURE 29 (PHD) 11 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Projective morphisms. Serre's theorems: affine schemes and vanishing cohomology. Cohomology of projective schemes. Genus-degree formula (proof). ECTURE 29 (PHD) 24 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Projective morphisms. Serre's theorems: affine schemes and vanishing cohomolog	LECTURE 14	24 November 2022	16:00 - 18:00	Room 134 (SISSA)	Theory	Reducedness is a local property. Reduced schemes. Reduced induced closed subscheme structure. Integral scheme = reduced + irreducible.
LECTURE 17 1 December 2022 16:00 - 18:00 Room 005 (SISSA) Exercises Affine and projective dimension theorems. Dimension of fibres. There are no morphisms P^n -> P^1 if n > 1. LECTURE 18 6 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory Morphisms: (locally) finite type, (quasi)separated, proper. Criteria for separatedness. Valuative criteria (no proof). Functions on proper k-schemes. LECTURE 19 13 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory Regular schemes. Jacobian criterion. Flat, smooth, unramified, étale morphisms. Infinitesimal lifting criterion with examples. LECTURE 20 15 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory O_X-modules, (quasi)separated, proper. Criteria for separatedness. Valuative criteria (no proof). Functions on proper k-schemes. LECTURE 21 15 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory O_X-modules, (quasi)coherent sheaves on affine and projective schemes. Maps to P^n_A as invertible sheaves + generating sections. LECTURE 22 10 January 2023 16:00 - 18:00 Room 005 (SISSA) Exercises Exercises on coherent sheaves and locally free sheaves. LECTURE 23 11 January 2023 16:00 - 18:00 Room 005 (SISSA) Exercises Blowups: definitions, main properties. Blowup of zero section of affine space over a ring. LECTURE 24 12 January 2023 16:00 - 18:00 Room 005 (SISSA) Exercises Blowups: more examples. 3 points in P^2. Intersection form on a surface (axiomatically) -> E^2 = -1 formula and consequences. LECTURE 26 (PHD) 19 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Cohomology of sheaves via injective resolutions. Flasque sheaves. Grothendieck's theorem on vanishing of H* above the Krull dimension. LECTURE 27 (PHD) 24 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Projective morphisms. Serre's theorems: affine schemes and vanishing cohomology. Cohomology of projective schemes. Genus-degree formula (proof). LECTURE 28 (PHD) 24 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Projective morphisms. Serre's theorems: affine schemes and vanishing cohomology. Cohomology	LECTURE 15	29 November 2022	9:00 - 11:00	Room 136 (SISSA)	Theory	Dimension of schemes and rings and main properties. Dimension theory for varieties. Krull's theorem (no proof) and consequences
RECTURE 18 6 December 2022 16:00 - 18:00 Room 134 (SISSA) Theory Morphisms: (locally) finite type, (quasi)separated, proper. Criteria for separatedness. Valuative criteria (no proof). Functions on proper k-schemes. RECTURE 19 13 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory Regular schemes. Jacobian criterion. Flat, smooth, unramified, étale morphisms. Infinitesimal lifting criterion with examples. RECTURE 21 10 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory O_X-modules, (quasi)scherent sheaves on affine and projective schemes. Maps to P^n_A as invertible sheaves + generating sections. RECTURE 22 10 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Weil and Cartier divisors. Relation with the Picard group. RECTURE 24 12 January 2023 16:00 - 18:00 Room 005 (SISSA) Exercises Blowups: definitions, main properties. Blowup of zero section of affine space over a ring. RECTURE 25 (PHD) 17 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Cohomology of sheaves via injective resolutions. Flasque sheaves. Grothendieck's theorem on vanishing of H* above the Krull dimension. RECTURE 26 (PHD) 19 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Projective morphisms. Serre's theorems: affine schemes and vanishing cohomology. Cohomology of projective schemes. Genus-degree formula (proof). RECTURE 27 (PHD) 24 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Projective morphisms. Serre's theorems: affine schemes and vanishing cohomology. Cohomology of projective schemes. Genus-degree formula (proof). RECTURE 28 (PHD) 26 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Ext. Serre duality on P^n. Dualising sheaf. Serre duality for smooth projective varieties. Canonical bundle of hypersurfaces. Deg = 2g-2 for plane curves. RECTURE 29 (PHD) 31 January 2023 16:00 - 18:00 Room 205 (IGAP) Theory Ext. Serre duality on P^n. Dualising sheaf. Serre duality for smooth projective varieties. Canonical bundle of hypersurfaces. Deg = 2g-2 for plane curves.	LECTURE 16	29 November 2022	16:00 - 18:00	Room 005 (SISSA)	Theory	Base change. Properties stable under base change, local on the target. The diagonal. Separated morphisms. Affine morphisms are separated.
ECTURE 19 13 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory O_X-modules, (quasi)coherent sheaves on affine and projective schemes. Maps to P^n_A as invertible sheaves + generating sections. ECTURE 21 10 January 2023 16:00 - 18:00 Room 005 (SISSA) Exercises Exercises on coherent sheaves and locally free sheaves. ECTURE 23 11 January 2023 16:00 - 18:00 Room 005 (SISSA) Exercises Blowups: definitions, main properties. Blowup of zero section of affine space over a ring. ECTURE 24 17 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Cohomology of sheaves via injective resolutions. Flasque sheaves. Grothendieck's theorem on vanishing of H* above the Krull dimension. ECTURE 26 (PHD) 19 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Projective morphisms. Serre's theorems: affine schemes and vanishing cohomology. Cohomology of projective schemes. Genus-degree formula (proof). ECTURE 27 (PHD) 24 January 2023 16:00 - 18:00 Room 205 (IGAP) Theory The relative cotangent sheaf. Characterisation of smoothness via the conormal exact sequence (no proof). Examples. ECTURE 28 (PHD) 31 January 2023 16:00 - 18:00 Room 205 (IGAP) Theory Curves !: Riemann-Roch, special divisors, examples. Riemann-Hurwitz formula. P^1 is simply connected.	LECTURE 17	1 December 2022	16:00 - 18:00	Room 005 (SISSA)	Exercises	Affine and projective dimension theorems. Dimension of fibres. There are no morphisms $P^n -> P^1$ if $n > 1$.
ECTURE 20 15 December 2022 16:00 - 18:00 Room 005 (SISSA) Theory O_X-modules, (quasi)coherent sheaves on affine and projective schemes. Maps to P^n_A as invertible sheaves + generating sections. EXECTURE 21 20 December 2022 16:00 - 18:00 Room 005 (SISSA) Exercises Exercises on coherent sheaves and locally free sheaves. LECTURE 22 10 January 2023 16:00 - 18:00 Room 005 (SISSA) Exercises Blowups: definitions, main properties. Blowup of zero section of affine space over a ring. LECTURE 23 11 January 2023 16:00 - 18:00 Room 005 (SISSA) Exercises Blowups: more examples. 3 points in P^2. Intersection form on a surface (axiomatically) -> E^2 = -1 formula and consequences. LECTURE 25 (PHD) 17 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Cohomology of sheaves via injective resolutions. Flasque sheaves. Grothendieck's theorem on vanishing of H* above the Krull dimension. LECTURE 26 (PHD) 19 January 2023 16:00 - 18:00 Room 205 (IGAP) Theory Projective morphisms. Serre's theorems: affine schemes and vanishing cohomology. Cohomology of projective schemes. Genus-degree formula (proof). LECTURE 27 (PHD) 24 January 2023 16:00 - 18:00 Room 205 (IGAP) Theory The relative cotangent sheaf. Characterisation of smoothness via the conormal exact sequence (no proof). Examples. LECTURE 28 (PHD) 31 January 2023 16:00 - 18:00 Room 205 (IGAP) Theory Ext. Serre duality on P^n. Dualising sheaf. Serre duality for smooth projective varieties. Canonical bundle of hypersurfaces. Deg = 2g-2 for plane curves LECTURE 29 (PHD) 31 January 2023 16:00 - 18:00 Room 205 (IGAP) Theory Curves I: Riemann-Roch, special divisors, examples. Riemann-Hurwitz formula. P^1 is simply connected.	LECTURE 18	6 December 2022	16:00 - 18:00	Room 134 (SISSA)	Theory	Morphisms: (locally) finite type, (quasi)separated, proper. Criteria for separatedness. Valuative criteria (no proof). Functions on proper k-schemes.
ECTURE 21 20 December 2022 16:00 - 18:00 Room 005 (SISSA) Exercises Exercises on coherent sheaves and locally free sheaves. 10 January 2023 16:00 - 18:00 Room 005 (SISSA) Exercises Exercises on coherent sheaves and locally free sheaves. 11 January 2023 16:00 - 18:00 Room 005 (SISSA) Exercises Blowups: definitions, main properties. Blowup of zero section of affine space over a ring. 12 January 2023 16:00 - 18:00 Room 005 (SISSA) Exercises Blowups: more examples. 3 points in P^2. Intersection form on a surface (axiomatically) -> E^2 = -1 formula and consequences. 13 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Cohomology of sheaves via injective resolutions. Flasque sheaves. Grothendieck's theorem on vanishing of H* above the Krull dimension. 15 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Projective morphisms. Serre's theorems: affine schemes and vanishing cohomology. Cohomology of projective schemes. Genus-degree formula (proof). 16 January 2023 16:00 - 18:00 Room 205 (IGAP) Theory The relative cotangent sheaf. Characterisation of smoothness via the conormal exact sequence (no proof). Examples. 17 January 2023 16:00 - 18:00 Room 205 (IGAP) Theory Ext. Serre duality on P^n. Dualising sheaf. Serre duality for smooth projective varieties. Canonical bundle of hypersurfaces. Deg = 2g-2 for plane curves 18 January 2023 16:00 - 18:00 Room 205 (IGAP) Theory Curves I: Riemann-Roch, special divisors, examples. Riemann-Hurwitz formula. P^1 is simply connected.	LECTURE 19	13 December 2022	16:00 - 18:00	Room 005 (SISSA)	Theory	Regular schemes. Jacobian criterion. Flat, smooth, unramified, étale morphisms. Infinitesimal lifting criterion with examples.
LECTURE 22 10 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Weil and Cartier divisors. Relation with the Picard group. LECTURE 23 11 January 2023 14:00 - 16:00 Room 136 (SISSA) Exercises Blowups: definitions, main properties. Blowup of zero section of affine space over a ring. LECTURE 24 12 January 2023 16:00 - 18:00 Room 005 (SISSA) Exercises Blowups: more examples. 3 points in P^2. Intersection form on a surface (axiomatically) -> E^2 = -1 formula and consequences. LECTURE 25 (PHD) 17 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Cohomology of sheaves via injective resolutions. Flasque sheaves. Grothendieck's theorem on vanishing of H* above the Krull dimension. LECTURE 26 (PHD) 19 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Projective morphisms. Serre's theorems: affine schemes and vanishing cohomology. Cohomology of projective schemes. Genus-degree formula (proof). LECTURE 27 (PHD) 24 January 2023 16:00 - 18:00 Room 205 (IGAP) Theory The relative cotangent sheaf. Characterisation of smoothness via the conormal exact sequence (no proof). Examples. LECTURE 28 (PHD) 26 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Ext. Serre duality on P^n. Dualising sheaf. Serre duality for smooth projective varieties. Canonical bundle of hypersurfaces. Deg = 2g-2 for plane curves LECTURE 29 (PHD) 13 January 2023 16:00 - 18:00 Room 205 (IGAP) Theory Curves I: Riemann-Roch, special divisors, examples. Riemann-Hurwitz formula. P^1 is simply connected.	LECTURE 20	15 December 2022	16:00 - 18:00	Room 005 (SISSA)	Theory	O_X-modules, (quasi)coherent sheaves on affine and projective schemes. Maps to P^n_A as invertible sheaves + generating sections.
LECTURE 23 11 January 2023 14:00 - 16:00 Room 136 (SISSA) Exercises Blowups: definitions, main properties. Blowup of zero section of affine space over a ring. LECTURE 24 12 January 2023 16:00 - 18:00 Room 005 (SISSA) Exercises Blowups: more examples. 3 points in P^2. Intersection form on a surface (axiomatically) -> E^2 = -1 formula and consequences. LECTURE 25 (PHD) 17 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Cohomology of sheaves via injective resolutions. Flasque sheaves. Grothendieck's theorem on vanishing of H* above the Krull dimension. LECTURE 26 (PHD) 19 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Projective morphisms. Serre's theorems: affine schemes and vanishing cohomology. Cohomology of projective schemes. Genus-degree formula (proof). LECTURE 27 (PHD) 24 January 2023 16:00 - 18:00 Room 205 (IGAP) Theory The relative cotangent sheaf. Characterisation of smoothness via the conormal exact sequence (no proof). Examples. LECTURE 28 (PHD) 26 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Ext. Serre duality on P^n. Dualising sheaf. Serre duality for smooth projective varieties. Canonical bundle of hypersurfaces. Deg = 2g-2 for plane curves LECTURE 29 (PHD) 31 January 2023 16:00 - 18:00 Room 205 (IGAP) Theory Curves I: Riemann-Roch, special divisors, examples. Riemann-Hurwitz formula. P^1 is simply connected.	LECTURE 21	20 December 2022	16:00 - 18:00	Room 005 (SISSA)	Exercises	Exercises on coherent sheaves and locally free sheaves.
LECTURE 24 12 January 2023 16:00 - 18:00 Room 005 (SISSA) Exercises Blowups: more examples. 3 points in P^2. Intersection form on a surface (axiomatically) -> E^2 = -1 formula and consequences. LECTURE 25 (PHD) 17 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Cohomology of sheaves via injective resolutions. Flasque sheaves. Grothendieck's theorem on vanishing of H* above the Krull dimension. LECTURE 26 (PHD) 19 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Projective morphisms. Serre's theorems: affine schemes and vanishing cohomology. Cohomology of projective schemes. Genus-degree formula (proof). LECTURE 27 (PHD) 24 January 2023 16:00 - 18:00 Room 205 (IGAP) Theory The relative cotangent sheaf. Characterisation of smoothness via the conormal exact sequence (no proof). Examples. LECTURE 28 (PHD) 26 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Ext. Serre duality on P^n. Dualising sheaf. Serre duality for smooth projective varieties. Canonical bundle of hypersurfaces. Deg = 2g-2 for plane curves LECTURE 29 (PHD) 31 January 2023 16:00 - 18:00 Room 205 (IGAP) Theory Curves I: Riemann-Roch, special divisors, examples. Riemann-Hurwitz formula. P^1 is simply connected.	LECTURE 22	10 January 2023	16:00 - 18:00	Room 005 (SISSA)	Theory	Weil and Cartier divisors. Relation with the Picard group.
LECTURE 25 (PHD) 17 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Cohomology of sheaves via injective resolutions. Flasque sheaves. Grothendieck's theorem on vanishing of H* above the Krull dimension. LECTURE 26 (PHD) 19 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Projective morphisms. Serre's theorems: affine schemes and vanishing cohomology. Cohomology of projective schemes. Genus-degree formula (proof). LECTURE 27 (PHD) 24 January 2023 16:00 - 18:00 Room 205 (IGAP) Theory The relative cotangent sheaf. Characterisation of smoothness via the conormal exact sequence (no proof). Examples. LECTURE 28 (PHD) 26 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Ext. Serre duality on P^n. Dualising sheaf. Serre duality for smooth projective varieties. Canonical bundle of hypersurfaces. Deg = 2g-2 for plane curves LECTURE 29 (PHD) 31 January 2023 16:00 - 18:00 Room 205 (IGAP) Theory Curves I: Riemann-Roch, special divisors, examples. Riemann-Hurwitz formula. P^1 is simply connected.	LECTURE 23	11 January 2023	14:00 - 16:00	Room 136 (SISSA)	Exercises	Blowups: definitions, main properties. Blowup of zero section of affine space over a ring.
LECTURE 26 (PHD) 19 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Projective morphisms. Serre's theorems: affine schemes and vanishing cohomology. Cohomology of projective schemes. Genus-degree formula (proof). LECTURE 27 (PHD) 24 January 2023 16:00 - 18:00 Room 205 (IGAP) Theory The relative cotangent sheaf. Characterisation of smoothness via the conormal exact sequence (no proof). Examples. LECTURE 28 (PHD) 26 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Ext. Serre duality on P^n. Dualising sheaf. Serre duality for smooth projective varieties. Canonical bundle of hypersurfaces. Deg = 2g-2 for plane curves LECTURE 29 (PHD) 31 January 2023 16:00 - 18:00 Room 205 (IGAP) Theory Curves I: Riemann-Roch, special divisors, examples. Riemann-Hurwitz formula. P^1 is simply connected.	LECTURE 24	12 January 2023	16:00 - 18:00	Room 005 (SISSA)	Exercises	Blowups: more examples. 3 points in P^2. Intersection form on a surface (axiomatically) -> E^2 = -1 formula and consequences.
LECTURE 27 (PHD) 24 January 2023 16:00 - 18:00 Room 205 (IGAP) Theory The relative cotangent sheaf. Characterisation of smoothness via the conormal exact sequence (no proof). Examples. LECTURE 28 (PHD) 26 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Ext. Serre duality on P^n. Dualising sheaf. Serre duality for smooth projective varieties. Canonical bundle of hypersurfaces. Deg = 2g-2 for plane curves Curves I: Riemann-Roch, special divisors, examples. Riemann-Hurwitz formula. P^1 is simply connected.	LECTURE 25 (PHD)	17 January 2023	16:00 - 18:00	Room 005 (SISSA)	Theory	Cohomology of sheaves via injective resolutions. Flasque sheaves. Grothendieck's theorem on vanishing of H* above the Krull dimension.
LECTURE 28 (PHD) 26 January 2023 16:00 - 18:00 Room 005 (SISSA) Theory Ext. Serre duality on P^n. Dualising sheaf. Serre duality for smooth projective varieties. Canonical bundle of hypersurfaces. Deg = 2g-2 for plane curves Curves I: Riemann-Roch, special divisors, examples. Riemann-Hurwitz formula. P^1 is simply connected.	LECTURE 26 (PHD)	19 January 2023	16:00 - 18:00	Room 005 (SISSA)	Theory	Projective morphisms. Serre's theorems: affine schemes and vanishing cohomology. Cohomology of projective schemes. Genus-degree formula (proof).
LECTURE 29 (PHD) 31 January 2023 16:00 - 18:00 Room 205 (IGAP) Theory Curves I: Riemann-Roch, special divisors, examples. Riemann-Hurwitz formula. P^1 is simply connected.	LECTURE 27 (PHD)	24 January 2023	16:00 - 18:00	Room 205 (IGAP)	Theory	The relative cotangent sheaf. Characterisation of smoothness via the conormal exact sequence (no proof). Examples.
	LECTURE 28 (PHD)	26 January 2023	16:00 - 18:00	Room 005 (SISSA)	Theory	Ext. Serre duality on P^n. Dualising sheaf. Serre duality for smooth projective varieties. Canonical bundle of hypersurfaces. Deg = 2g-2 for plane curves
LECTURE 30 (PHD) 2 February 2023 16:00 - 18:00 Room 005 (SISSA) Theory Statement of cohomology and base change, and applications. Sketch of the construction of the moduli space of curves.	LECTURE 29 (PHD)	31 January 2023	16:00 - 18:00	Room 205 (IGAP)	Theory	Curves I: Riemann-Roch, special divisors, examples. Riemann-Hurwitz formula. P^1 is simply connected.
	LECTURE 30 (PHD)	2 February 2023	16:00 - 18:00	Room 005 (SISSA)	Theory	Statement of cohomology and base change, and applications. Sketch of the construction of the moduli space of curves.