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Embryonic and foetal programming in the equine: a need for epigenetic evaluation

Pascale Chavatte-Palmer, Morgane Robles, Emilie Derisoud, Eric Palmer

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14th International Havemeyer Foundation Horse Genome Workshop



The Battle of Hastings (La bataille de Hastings, 1066), Scenes 55 & 56,
Tapestry Museum (Musée de la Tapisserie), Bayeux.

12th to 15th, May 2024

Caen, Normandy, France

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THE DOROTHY RUSSELL HAVEMEYER FOUNDATION, INC.

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New York, NY 10165-0006

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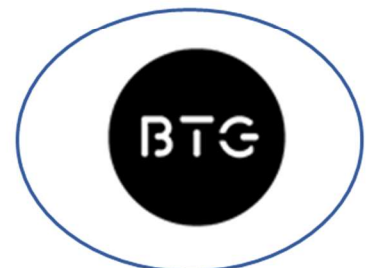
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Workshop Synopsis

Day	Weekday	May	Events	Location
1	Sunday	12	14:30 Registration 16:30 Conferences 18:30 Welcome reception	Université Caen Normandie* (Campus 1, Bâtiment P, Amphithéâtre Pierre Daure)
2	Monday	13	9:00 – 15:45 Full day meeting 15:45 Bus to touristic venues Free evening	Université Caen Normandie (Campus 1, Bâtiment P, Amphithéâtre Pierre Daure) Bayeux / Dozulé / Caen
3	Tuesday	14	9:00 – 18:00 Full day meeting 19:30 Evening social event	Université Caen Normandie (Campus 1, Bâtiment P, Amphithéâtre Pierre Daure) Hôtel de ville, Salle de l'ancien réfectoire, Esplanade Jean-Marie-Louvel
4	Wednesday	15	9:00 – 13:30 Meeting 13:30 Departure	Université Caen Normandie (Campus 1, Bâtiment P, Amphithéâtre Pierre Daure)

*** Université Caen Normandie; Campus 1**

Esplanade de la Paix
14032 Caen

Access to Campus 1 :

Bus : lines 2, 4, 10, 12 & 23, Bus stop :
Université

Tram : lines T1 & T2, Tram stop : Université



Scientific and Social Program

The duration of presentations is as follows:

- Keynote, 30 minutes, with 15 additional minutes for questions.
- Short talk, 10 minutes, with 5 additional minutes for questions.

Day 1: Sunday 12 May 2024

Location: Université Caen Normandie; Campus 1, Bâtiment P, Amphithéâtre Pierre Daure



14:30 - 16:30 **Registration and welcome coffee and tea**

16:30 - 16:40 **Welcoming remarks and announcements**

Eric Barrey - Université Paris-Saclay, AgroParisTech, INRAE, France.

Ludovic Orlando – CAGT, CNRS, Université Paul Sabatier, France.

Guillaume Fortier – LABÉO, France.

16:40 - 17:25 **Keynote 1**

Specificities of the French horse industry

Guillaume Blanc - Institut Français du Cheval et de l'Équitation, France.

Sophie Danvy - Institut Français du Cheval et de l'Équitation, France.

17:25 - 18:10 **Keynote 2**

History of the Havemeyer Horse Genomics Workshop

Ernest Bailey - Maxwell H. Gluck, Equine Research Center, College of Agriculture, Food and Environment, University of Kentucky, KY, USA.

Doug Antczak - Baker Institute for Animal Health College of Veterinary Medicine Cornell University, Ithaca, NY, USA.

18:10 - 18:20 **Announcements**

18:30 - 20:00 **Welcome cocktail**

Day 2: Monday 13 May 2024

Location: Université Caen Normandie; Campus 1, Bâtiment P, Amphithéâtre Pierre Daure

8:30 - 9:00 **Registration**

Topic 1: Equine evolution, breed development and management

Chairpersons: Nadine Buys and Sian Durward-Akhurst

- 9:00 - 9:45** **Keynote 3**
The horse before and after our shared history
Ludovic Orlando - CAGT, CNRS, Université Paul Sabatier, France.
- 9:45 - 10:30** **Short talks**
9:45 - 10:00 A survey of genetic variation in today's US Thoroughbred with application to predicting the diversity of tomorrow
Jessica Petersen - Department of Animal Science, University of Nebraska-Lincoln.
- 10:00 - 10:15 A Thoroughbred T2T Reference Genome
Kai Li - Gluck Equine Research Center, Veterinary Science Department, University of Kentucky.
- 10:15 - 10:30 Equine pangenome graph identifies novel structural and single nucleotide variants
Sam Stroupe - School of Veterinary Medicine and Biomedical Sciences, Texas A&M University, College Station.
- 10:30 - 11:15** **Tea and coffee break & Poster session**
- 11:15 - 12:00** **Short talks**
11:15 - 11:30 A Rosetta Stone for the Equine Major Histocompatibility Complex
Doug Antczak - Baker Institute for Animal Health, Cornell University.
- 11:30 - 11:45 After a ten-year search for variation on the horse Y chromosome: what we have learned about the history of stallions and what still remains hidden
Barbara Wallner - Department of Biomedical Sciences, Animal Breeding and Genetics, University of Veterinary Medicine Vienna.
- 11:45 - 12:00 Assessing stakeholder needs to inform outreach efforts and research priorities from the equine genomics community
Samantha Brooks - Department of Animal Sciences, UF Genetics Institute, University of Florida.
- 12:00 - 13:30** **Lunch, sweets and coffee & Poster session**

13:30 - 13:45 **Sponsor talk - Illumina**

13:45 - 15:15 **Workshops 1 & 2**

1- Standards and Guidelines for Equine Genetics Research

Danika Bannasch, - Department of Population Health and Reproduction, School of Veterinary Medicine, University of California.

2- Equine Pangenome Workshop

Ted Kalbfleisch, - Gluck Equine Research Center, Martin-Gatton College of Agriculture, Food, and Environment.

15:15 - 15:45 **Tea and coffee break & Poster session**

15:45 **End of session**

15:46 **Visit departure**

Visit 1: Bayeux Tapestry

Visit 2: Cirale: the imaging and research center on equine locomotor disorders

Visit 3: Caen Memorial Museum: In the Heart of History

Free evening at Caen downtown (see map)

Day 3: Tuesday 14 May 2024

Location: Université Caen Normandie; Campus 1, Bâtiment P, Amphithéâtre Pierre Daure

Topic 2: Functional genomics, epigenetics and reproduction

Chairpersons: Elena Giulotto and Shavahn Loux

- 9:00 - 9:45** **Keynote 4**
Epigenetics and transmission of traits
Hélène Kiefer - Université Paris-Saclay, INRAE, BREED.
- 9:45 - 10:30** **Short talks**
9:45 - 10:00 Embryonic and foetal programming in the equine: a need for epigenetic evaluation
Pascale Chavatte-Palmer - Université Paris-Saclay, INRAE, BREED.
- 10:00 - 10:15 Defining the intolerance of the equine conceptus
Amanda de Mestre - Baker Institute for Animal Health, Cornell University.
- 10:15 - 10:30 An upstream deletion of the TUBB locus is associated with Early Pregnancy Loss in the Mare
Donald Miller - Baker Institute for Animal Health, Cornell University.
- 10:30 - 11:15** **Tea and coffee break & Poster session**
- 11:15 - 12:15** **Short talks**
11:15 - 11:30 A genome-scan for homozygous haplotype deficiency in the Thoroughbred horse identifies variants for normal embryogenesis
Emmeline W. Hill - University College, Dublin.
- 11:30 - 11:45 Molecular studies of Thoroughbred stallion subfertility due to impaired acrosomal exocytosis
Terje Raudsepp - College of Veterinary Medicine and Biomedical Sciences, Texas A&M University, College Station.
- 11:45 - 12:00 Charting the equine miRNA landscape: an integrated pipeline and browser for annotating, quantifying, and visualizing expression
Jonah Cullen - Department of Veterinary Population Medicine, University of Minnesota.
- 12:00 - 12:15 High-quality, haplotype-resolved reference assemblies of the Friesian horse and the Dutch Warmblood horse using trio binning
Marije Steensma - Wageningen University & Research, Animal Breeding and Genomics.

12:15 - 13:45 **Lunch, sweets and coffee & Poster session**

13:45 - 14:00 **Sponsor talk - Thermo Fisher Scientific**

14:00 - 15:30 **Workshops 3 & 4**

3- Mendelian and oligogenic variant discovery workshop and round table
Molly McCue - Department of Veterinary Population Medicine, University of Minnesota.

4- Genome-wide runs of homozygosity revealed sources of inconsistencies in the Axiom™ Equine Genotyping array
Markus Neuditschko - Animal GenoPhenomics, Agroscope, Posieux, Switzerland.

15:30 - 16:15 **Tea and coffee break & Poster session**

Topic 3: Genomics of performances and welfare

Chairpersons: Annik Gmel and Nicole Tate

16:15 - 17:00 **Keynote 5**
Gene doping in human and animal models
Nicolas Leuenberger - Lausanne University Hospital.

17:00 - 17:45 **Short talks**
17:00 - 17:15 Unraveling the genetic network of alternate gaits in Colombian Paso Horses: A multifaceted approach integrating genomics, machine learning, and objective motion analyses
Miguel Novoa-Bravo - Genética Animal de Colombia SAS.

17:15 - 17:30 Employing Deep Neural Networks for precision phenotyping of selected kinematic traits in Arabian horses: a pilot study on heritability and the effect of inbreeding
Weronika Klecel - Department of Animal Genetics and Conservation, Institute of Animal Sciences, Warsaw University of Life Sciences.

17:30 - 17:45 Deep Learning Application for Predicting Endurance Horse Racing Performance via High-Density Genotyping
Eric Barrey - Université Paris-Saclay, AgroParisTech, INRAE.

17:45 - 18:00 **Closing discussion**

19:30 **Dinner - Hôtel de ville de Caen, salle de l'ancien réfectoire.**
Buffet with regional products and musical entertainment.

Please, NO HIGH HEELS because of historical carpet



Day 4: Wednesday 15 May 2024

Location: Université Caen Normandie; Campus 1, Bâtiment P, Amphithéâtre Pierre Daure

Topic 4: Genomics of equine diseases

Chairpersons: Annette McCoy and Tatiana Vinardell

9:00 - 9:45

Short talks

9:00 - 9:15

Optimizing Mendelian and oligogenic disease discovery: tools, best practices, and framework for clinical interpretation

Molly McCue - Department of Veterinary Population Medicine, University of Minnesota.

9:15 - 9:30

Identification of the role of SEL1L in platelet function with implications for Atypical Equine Thrombasthenia in Thoroughbred horses

Anna Dahlgren - Department of Population Health and Reproduction, School of Veterinary Medicine, University of California Davis.

9:30 - 9:45

Putative Functional Genetic Variant for Equine Juvenile Spinocerebellar Ataxia in Quarter Horse Foals

Carrie Finno - Department of Population Health and Reproduction, School of Veterinary Medicine, University of California Davis.

9:45 - 10:30

Tea and coffee break & Poster session

10:30 - 11:00

Short talks

10:30 - 10:45

An intronic copy number variation in Syntaxin 17 determines speed of greying and melanoma incidence in Grey horses

Leif Andersson - Science for Life Laboratory, Department of Medical Biochemistry and Microbiology, Uppsala University.

10:45 - 11:00

Developing a genomic prediction model for recurrent exertional rhabdomyolysis risk in racehorses

Kirsten Dimmler - Department of Veterinary Population Medicine, University of Minnesota.

11:00 - 12:30

General discussion and conclusion of 14th Havemeyer Horse Genomics Workshop

Awards for the best talk, best poster & best workshop

12:30

Lunch basket

Departure

Poster Sessions

Monday, May 13th

Equine evolution, breed development and management

#	Presenter	Title
1	Elena Giulotto	Hotspots for centromere formation in horse and other Perissodactyla
2	Julia Ciosek	Reference quality genomes for Egyptian Arabian and Shire horses and future applications
3	Farooq Al-Ajli	Whole Genome Sequencing of 171 Arabian horses provides insights into the population structure and contribution to global equine breeds
4	Kathrin F Stock	Runs of homozygosity and genomic inbreeding in the German riding horse population
5	Nahla Hussien AbouEl Ela	Skim sequencing: a high-throughput technique for Thoroughbred horses genotyping
6	Brandon Velie	Genetic Diversity and Inbreeding in the Australian Heritage Brumby
7	Eleonora Cappelletti	Centromere protein B and chromosome stability in equids
8	Hanin Ibrahim Ahmed	The genomic history of modern horse breeding
9	Sonja Egan	Opportunities and Barriers in cross studbook transition from Microsatellites to Single Nucleotide Polymorphism
10	Helena Kjöllersström	Optical mapping and functional analysis of a complex X-autosome rearrangement in a Thoroughbred mare
11	Steven Janssens	Genome-wide association study for Roan coat color in Belgian draft horses
12	Sebastián Demyda Peyrás	Variations in the genomic landscape associated to the onset of inbreeding depression in fertility parameters of Pura Raza Español horses.
13	Mohammad Abdoli	Genome structure survey of Caspian horse breeds by microsatellite markers
14	Mohammad Bagher Zandi	Survey of population structure and linkage disequilibrium pattern of Iranian native horse breeds by SNP markers
61	Laura Patterson Rosa	Evaluating signatures of selection associated with equine adaptation to wetlands
62	Rytis Juras	Comparative genetic analysis of equine populations by parallel genotyping for Short Tandem Repeats (STRs) and High Density SNP array (670K HD)
63	Monika Stefaniuk-Szmukier	The Arabian horse population from Poland. An excellent example of cooperation between science and practice
64	Paul Flynn	Comparative Genomic Characterisation of the Rare Native Irish Kerry Bog Pony Breed.

Tuesday, May 14th, Morning
Functional genomics, epigenetics and reproduction

#	Presenter	Title
15	Jennifer Doyle	Imputation of ungenotyped horses from the genotypes of their progeny
16	Sarah Blott	A cell atlas of the complete equine airway
17	Katrien Smits	Shallow whole genome sequencing demonstrates euploidy in equine in vitro produced blastocysts
18	Lauren Johnson	Functional Impact of Putatively Identified Introgressed Alleles within the Horse Genome
19	Victoria O'Hara	Single-nucleus RNA sequencing of the equine brainstem
20	Androniki Psifidi	Characterising differences in chromatin accessibility and gene expression between two equine muscles with different primary functions
21	Gabriella Lindgren	A genomic approach to the origin of the horse mane
23	Eliane Marti	Development of a pipeline for automated analysis of single cell RNA sequencing data from equine peripheral blood mononuclear cells
24	Tomasz Ząbek	Differential DNA methylation across ten tissue types of Thoroughbred stallions within the Equine FAANG initiative
25	Shavahn Loux	In Silico Analysis of Genomic Vitamin D Response Elements in the Horse Suggests Unique Mechanisms Behind Equine Response to Vitamin D
26	Brian Davis	Exploring the genomic component of equine sex development and reproduction
27	Joanna Jaworska	Genetic regulation of placentation in mares – preliminary results

Tuesday, May 14th, Afternoon
Genomics of performances and welfare

#	Presenter	Title
28	Maksimova Kseniia	Exploring genetic diversity and identifying key contributors in the Thoroughbred horse population for development of an imputation reference panel
29	Teruaki Tozaki	Causative gene identification strategy in thoroughbred horses using a whole-genome variant database
30	Susanne Eriksson	Single-step genome-wide association study of factors for evaluated and linearly scored traits in Swedish Warmblood horses
31	Anne Ricard	Heritability of blood parameters and their relationship with longevity in jumping competition
32	Liu Xuexue	4,200 years of selection for key horse phenotypes
33	Sofia Mikko	Analysis of Equine Genomic Regions Comprising Candidate Genes Associated with Ehlers-Danlos Syndrome in Humans
34	Vittoria Asti	Combining novel motion technology and genotype data in three Italian horse native breeds.
35	Armelle Govignon	French genomic evaluation of show jumping in sport horses
36	Annik Gmel	Shape and Gaits 2.0: Preliminary results on new QTL suggestively associated with objective gait quality parameters in Franches-Montagnes horses
37	Nicole Tate	Heritability of performance traits in North American Standardbred racehorses estimated from SNP genotyping data
58	Benoit Loup	Strategy to detect gene doping in blood collected in lithium-heparin tubes in the horse athlete

Wednesday, May 15th, Morning

Genomics of equine diseases

#	Presenter	Title
22	Roberta Ratto	Transcriptomic integrated approach of horse bovine papillomavirus-related sarcoids
38	Jillian Marlowe	Utilizing empirical and simulated equine whole genome sequencing data to create recommendations for variant discovery in the horse
39	Jillian Maniego	Administration and detection of a gene doping multi-target AAV gene doping vector in horses using multiple matrices and molecular techniques.
40	Léa Chopard	X-chromosome association study for microphthalmia in Warmblood horses
41	Lauren Hughes	Improving Candidate Gene Prioritization Standards in the Horse
42	Stephanie Valberg	Exon-specific expression of RYR1 occurs in Thoroughbreds susceptible to recurrent exertional rhabdomyolysis and is mitigated by treatment with dantrolene
43	Laura Barrachina	CELLEQUS: an MHC haplo-bank of equine mesenchymal stem cells (MSCs) from homozygous donors
44	Amy Ross	Investigating the effects of Galectin 1 expression levels and its association with fracture risk in Thoroughbred horses.
45	Annette McCoy	Integration of genome-wide association analysis and tissue-specific transcriptomics to prioritize functional and predictive variants for equine osteochondrosis
46	Esther Palomino Lago	Genomic approaches for understanding the genetics of catastrophic fracture in Thoroughbred horses
47	Thomas Simon	Decoding the Genetic Basis of Myotonic Dystrophy in Horses: Insights from In-Depth Genomic Exploration
48	Petr Horin	Genetic susceptibility to sarcoid in Arab horses: associations with MHC but not with NKC genomic regions
49	Monika Bugno-Poniewierska	In-depth analysis of the equine genome related to disorders of sexual development using the CGH microarray technique
50	Nora Laseca	Using SNP genotyping as a complementary technique to detect chromosomal abnormalities in Pura Raza Español horses
51	Sian A Durward-Akhurst	A comparison of commonly used variant annotators for quantifying the genetic burden in the horse.
52	Thomas Hall	Integrative genomics of Thoroughbred horse recurrent laryngeal neuropathy
53	Victoria Lindsay-McGee	Breed-specific SNP and genomic regions associated with equine recurrent exertional rhabdomyolysis susceptibility overlapping with up- and down-regulatory histone modifications
54	Navid YousefiMashouf	Whole-Genome Sequence Study of Megaesophagus in Friesian Horses

55	Sophie Dhorne-Pollet	Review: Long read sequencing applied to equine genomics to improve selection for exercise ability and health
56	Elouise Bacon	A genome-wide association of variable sensitivity to multimodal analgesia in horses
57	Christopher Fitzpatrick	Antisense oligonucleotides directed to the mitochondrial long non-coding eca-ASncmtRNA inhibit equine skin tumor cell proliferation
59	Rebecca Bishop	Effect of pasture vs stable management on gastric and fecal microbiota of healthy horses
60	Elizabeth Esdaile	Evidence of FBN1:p.(Ala882Val) as Likely Causal for Congenital Bilateral Ectopia Lentis in a Horse

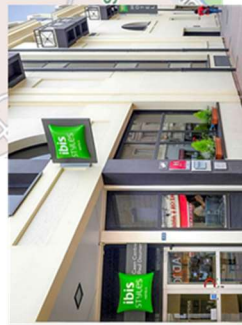
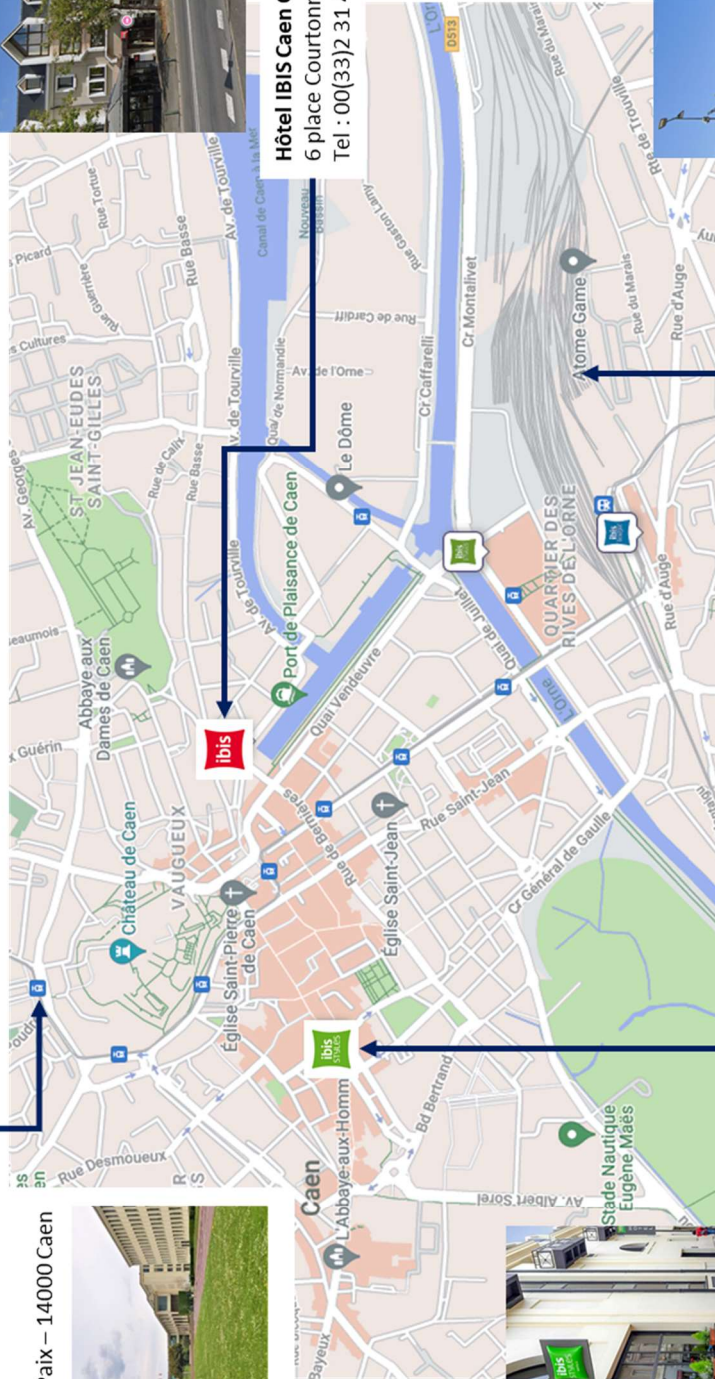
Map of downtown Caen

Université Caen Normandie
Workshop venue

Campus 1
Esplanade de la Paix – 14000 Caen



Hôtel Ibis Caen Centre, Port de Plaisance
6 place Courtonne 14000 CAEN
Tel : 00(33)2 31 47 24 24



Hôtel Ibis Styles Centre Paul Doumer
33 rue de Bras – 14000 Caen – France
T +33 (0)2 31 50 00 00



Train station

To reach your hotel you can use public transport or a taxi.
Tram line 3 allows you to get closer to your hotels (see timetable on next page)
You can also reach your hotel by walking (between 15 and 20 minutes)

From train station to the hotels, Sunday May 12th

You can buy a public transportation card for the duration of the conference. Machines are available at Tram stops



Sunday, tram **T3** timetable

to reach your hotel

Tram stop « Bernière » or « Saint Pierre » for:

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6 place Courtonne 14000 CAEN
Tel : 00(33)2 31 47 24 24

Tram stop « Château Quatrans » for:

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Dimanches et fêtes : Direction → CAEN - Château Quatrans

Hauts de l'Orne	8.17	8.36	9.10	9.42	10.14	10.46	11.18	11.50	12.22	12.54	13.26	13.58	14.30	15.02	15.34	16.06	16.38
Grâce de Dieu	8.21	8.40	9.14	9.46	10.18	10.50	11.22	11.54	12.26	12.58	13.30	14.02	14.34	15.06	15.38	16.10	16.42
Poincaré	8.25	8.44	9.18	9.50	10.22	10.54	11.26	11.58	12.30	13.02	13.34	14.06	14.38	15.10	15.42	16.14	16.46
Leroy	8.30	8.49	9.23	9.55	10.27	10.59	11.31	12.03	12.35	13.07	13.39	14.11	14.43	15.15	15.47	16.19	16.51
Gare SNCF	8.32	8.51	9.25	9.57	10.29	11.01	11.33	12.05	12.37	13.09	13.41	14.13	14.45	15.17	15.49	16.21	16.53
Quai de Juillet	8.34	8.53	9.27	9.59	10.31	11.03	11.35	12.07	12.39	13.11	13.43	14.15	14.47	15.19	15.51	16.23	16.55
Saint-Pierre	8.37	8.56	9.30	10.02	10.34	11.06	11.38	12.10	12.42	13.14	13.46	14.18	14.50	15.22	15.54	16.26	16.58
Château Quatrans	8.39	8.58	9.32	10.04	10.36	11.08	11.40	12.12	12.44	13.16	13.48	14.20	14.52	15.24	15.56	16.28	17.00

Hauts de l'Orne	17.10	17.42	18.14	18.46	19.18	19.50	20.22	20.54	21.26	21.58	22.30	23.02	23.34
Grâce de Dieu	17.14	17.46	18.18	18.50	19.22	19.54	20.26	20.58	21.30	22.02	22.34	23.06	23.38
Poincaré	17.18	17.50	18.22	18.54	19.26	19.58	20.30	21.02	21.34	22.06	22.38	23.10	23.42
Leroy	17.23	17.55	18.27	18.59	19.31	20.03	20.35	21.07	21.39	22.11	22.43	23.15	23.47
Gare SNCF	17.25	17.57	18.29	19.01	19.33	20.05	20.37	21.09	21.41	22.13	22.45	23.17	23.49
Quai de Juillet	17.27	17.59	18.31	19.03	19.35	20.07	20.39	21.11	21.43	22.15	22.47	23.19	23.51
Saint-Pierre	17.30	18.02	18.34	19.06	19.38	20.10	20.42	21.14	21.46	22.18	22.50	23.22	23.54
Château Quatrans	17.32	18.04	18.36	19.08	19.40	20.12	20.44	21.16	21.48	22.20	22.52	23.24	23.56

For more options: https://tim.twisto.fr/tim/data/pdf/1995_T1-2-3-janv%202024.pdf

Map of downtown Caen

Hôtel de ville de Caen
 Abbaye aux hommes
 Salle de l'ancien réfectoire,
 Esplanade Jean-Marie-Louvel

Workshop venue
 Université Caen Normandie,
 Campus 1
 Esplanade de la Paix

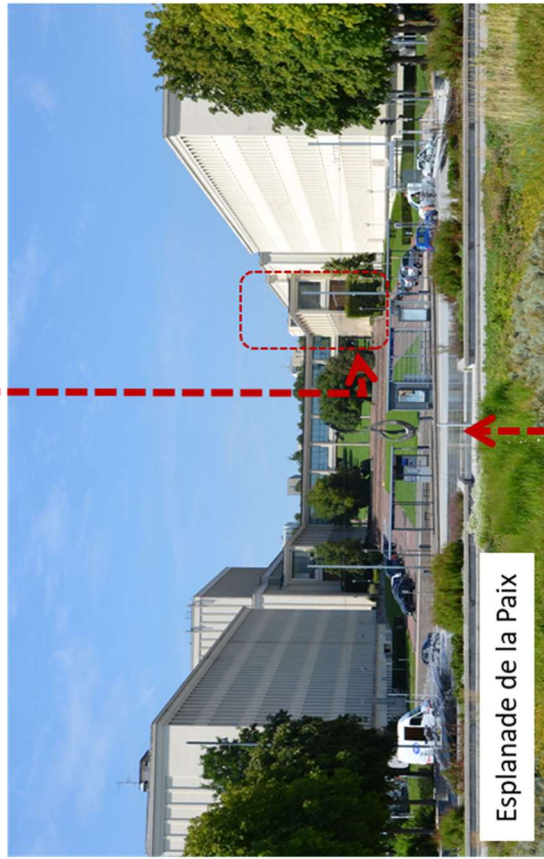
Hôtel Ibis Caen Centre, Port de Plaisance
 6 place Courtonne 14000 CAEN
 Tel : 00(33)2 31 47 24 24

Hôtel Ibis Styles Centre Paul Doumer
 33 rue de Bras – 14000 Caen – France
 T +33 (0)2 31 50 00 00

Tram station

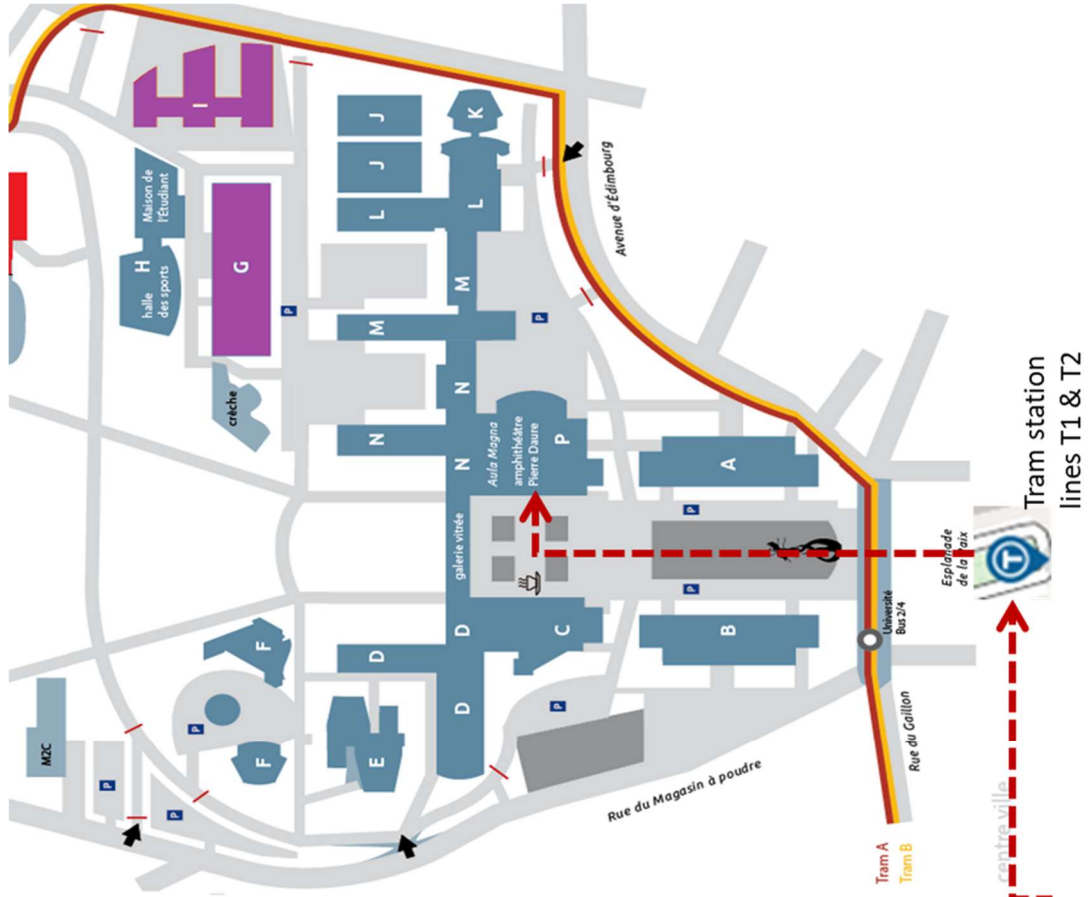
Caen University, Campus 1,

Bâtiment P,
Amphithéâtre Pierre Daure



Esplanade de la Paix

Tram stop : Université
lignes T1 & T2

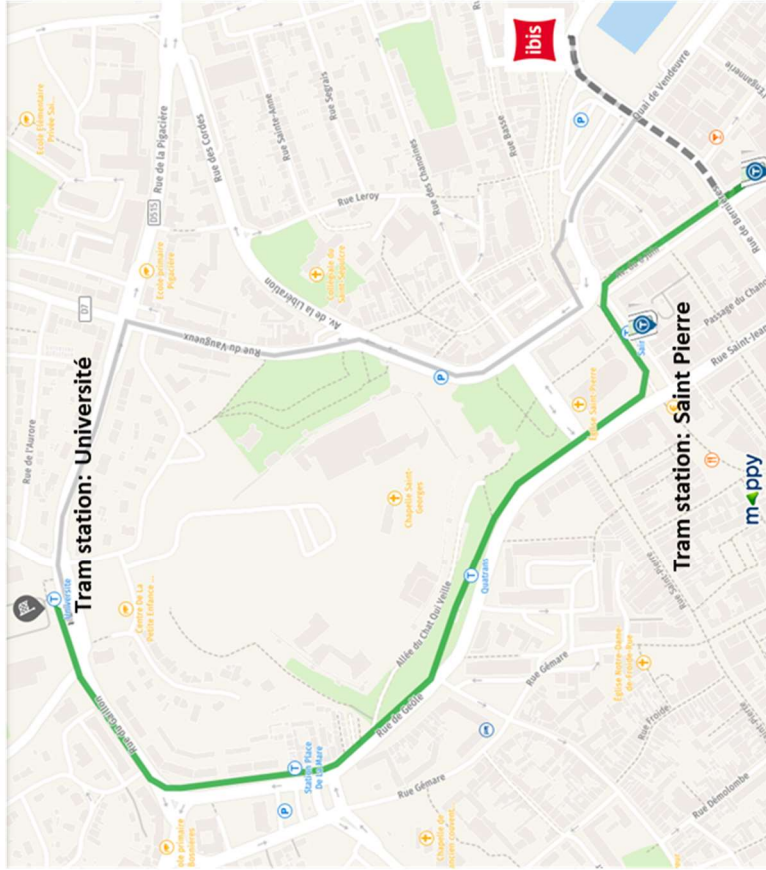




To reach the University (Campus 1, bâtiment P, Amphithéâtre Pierre Daure)

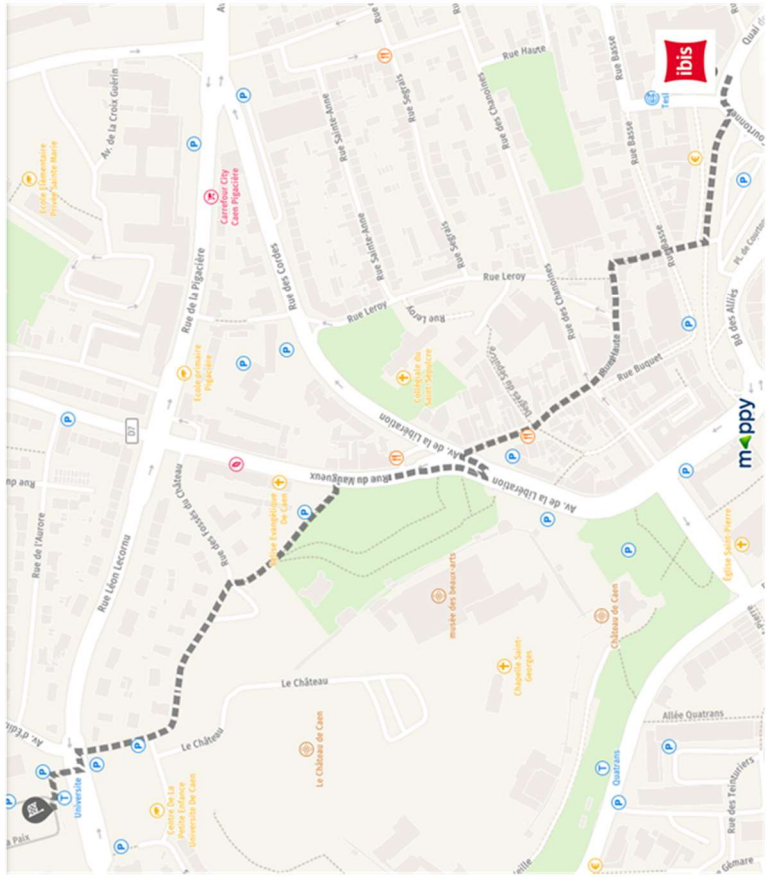
from: **Hôtel IBIS Caen Centre, Port de Plaisance**
 6 place Courtonne 14000 CAEN
 Tel : 00(33)2 31 47 24 24

**Public transportation (Tram T2 ; 10 minutes;
 see timetable on next page)**



Tram station: Bernière

13 minutes walking (1000 meters)

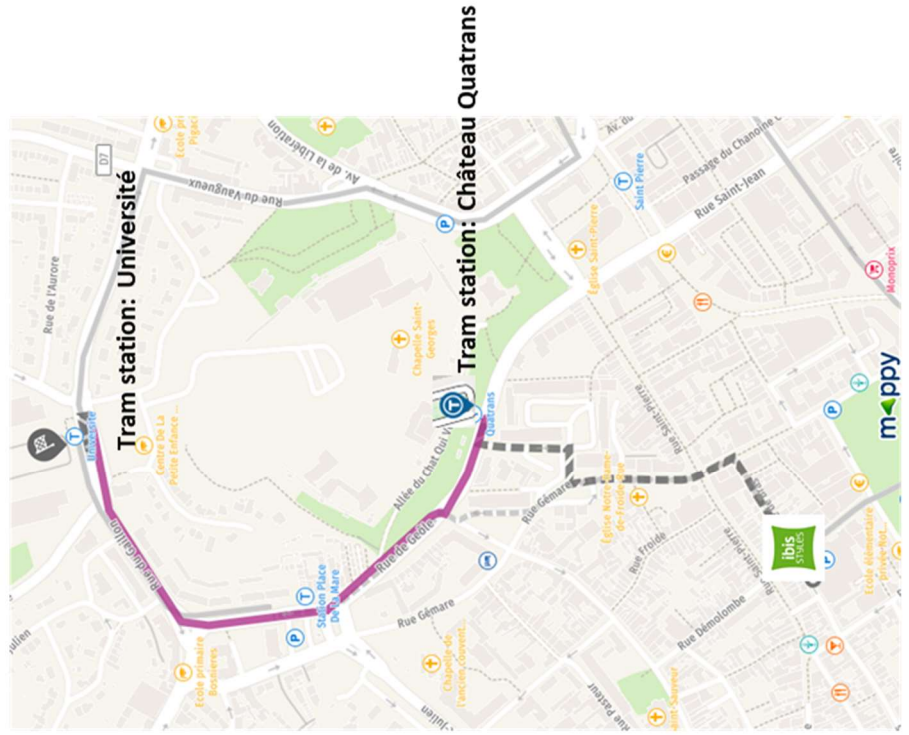


To reach the University (Campus 1, bâtiment P, Amphithéâtre Pierre Daure)

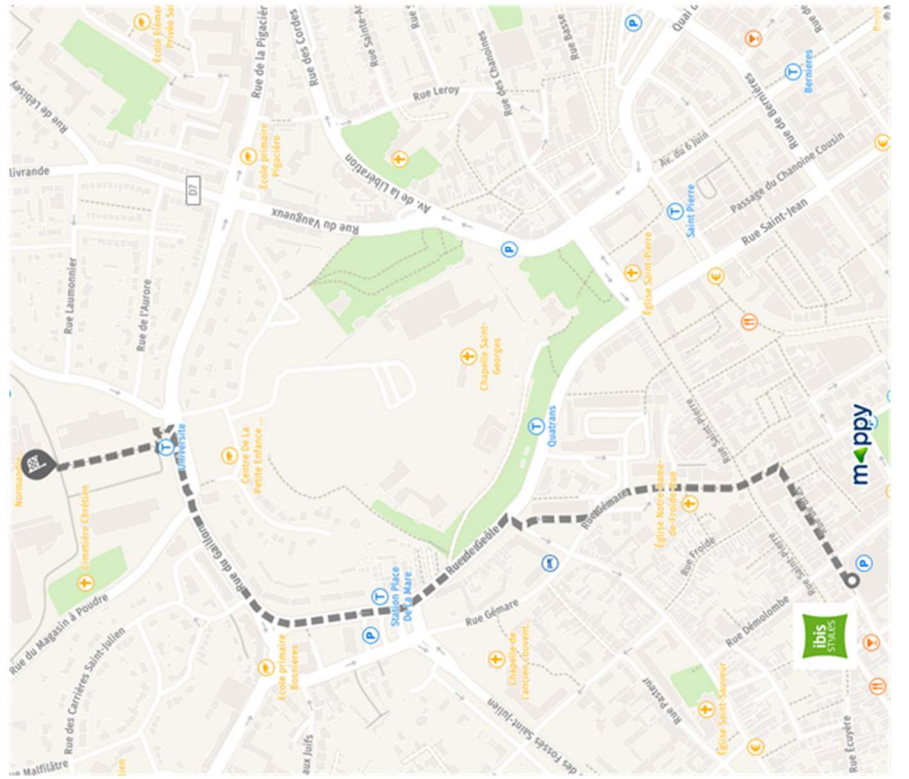
From: Hôtel ibis Styles Centre Paul Doumer
33 rue de Bras – 14000 Caen – France
T +33 (0)2 31 50 00 00




**Public transportation (Tram T2 ; 12 minutes;
see timetable on next page)**




16 minutes walking (1200 meters)




From the hotels to workshop venue, Université Caen Normandie, Campus 1



**CAEN
Campus 2**

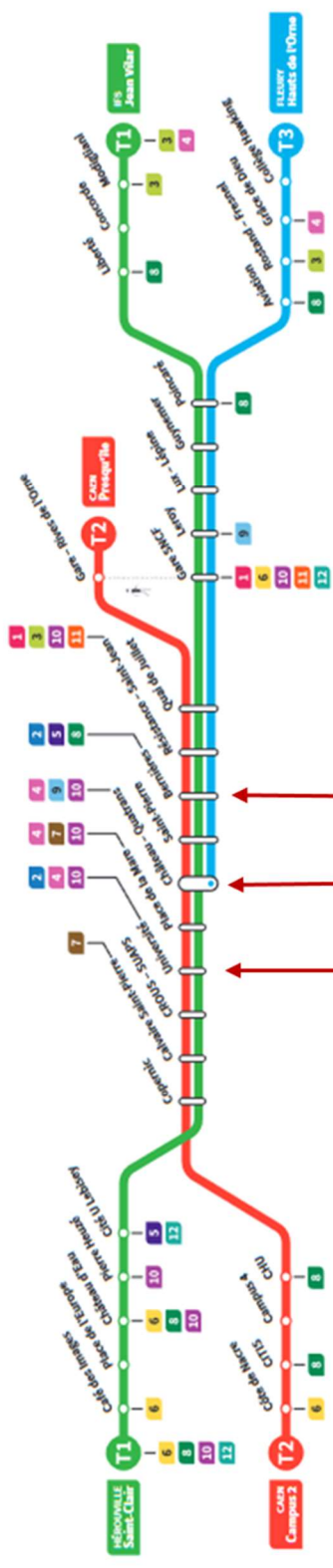


**CAEN
Presqu'île**



Ligne accessible
Tous les arrêts de cette ligne
sont accessibles aux personnes
à mobilité réduite.


Horaires valables du lundi 8 janvier jusqu'au dimanche 14 juillet 2024*



Tram stop for the University; campus 1

Tram stop when you are at: **Hôtel IBIS Caen Centre, Port de Plaisance**
6 place Courtonne 14000 CAEN
Tel : 00(33)2 31 47 24 24

Tram stop when you are at: **Hôtel Ibis Styles Centre Paul Doumer**
33 rue de Bras – 14000 Caen – France
T +33 (0)2 31 50 00 00

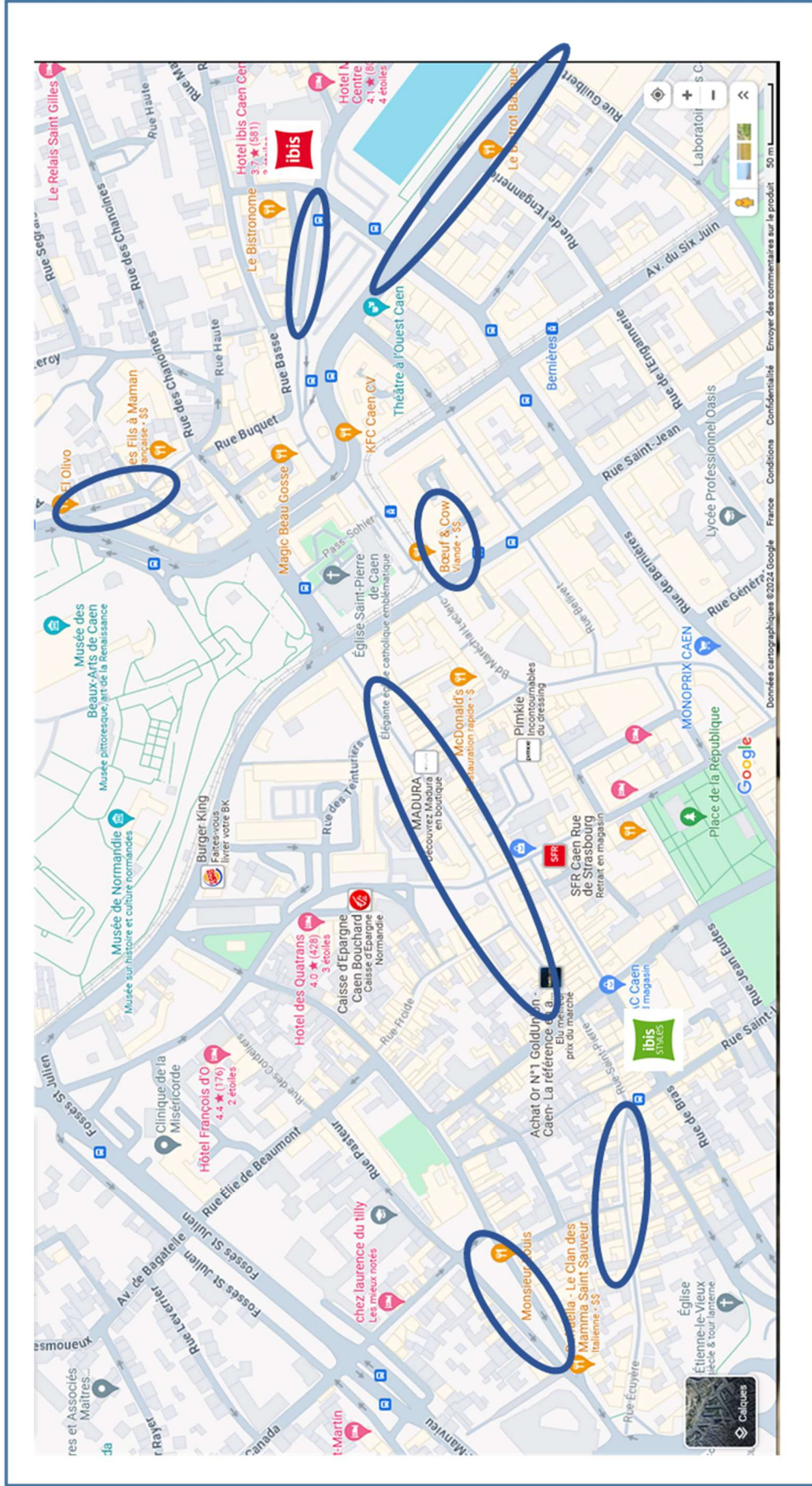


From Monday to Friday, from 7:00 a.m. to 7:00 p.m., there is a tram every 8 to 10 minutes

For more options: https://tim.twisto.fr/tim/data/pdf/1995_T1-2-3-janv%202024.pdf

where to dine.....

<https://www.caenlamer-tourisme.com/eat-sleep/eating-out/all-restaurants/>



Some good addresses, in French of course!!!

Bistrot Basque 24 quai Vendeuvre Phone: 02 31 38 21 26	Voilà le sud dans les assiettes : tapas, axoa, farandole de chipirons, parillada de poissons régalent. A ne pas manquer !
Monsieur Louis 11 Place Saint Sauveur 02 61 53 60 50	Une parenthèse Gastronomique dans le vieux Caen, écrin naturellement historique, Monsieur Louis propose une carte gourmande à l'accent de Normandie
LA POTERNE 9, rue du Vaugueux 02.31.93.57.46	Ah le charme de la Poterne ! A table : foie gras, tripes à la mode de Caen, haché de bœuf à cheval, croque végétarien et salade (de la bonne, de la fraîche, de la croquante)... Simple, frais et maison.
LE RAPHAËL 7, Quai Francois Mitterrand 02 58 47 03 00	Modern brasserie
Le Carlotta 16 quai Vendeuvre 02 31 86 68 99	Old style (1900) brasserie
BOEUF & COW 6, boulevard des Alliés Phone: 02.31.86.37.75	Amis carnivores, dans ce restaurant, vous mangerez 100 % de race normande !
CANAGLIA PIZZERIA 5, rue Écuyère, 02.31.79.90.83	<i>Benvenuti</i> chez César ! Formé à Naples, capitale de la pizza. la vraie pizza napolitaine, avec sa fine pâte faite maison et des produits frais de belle qualité venus tout droit d'Italie.
En voiture simone 17, rue de l'Oratoire +33 2 31 50 19 94	Produits des frais, régionaux pour des plats originaux hauts en couleur (dont un végétarien <i>of course</i> !)
L'Aromate 9, rue Gémare +33 2 31 85 30 30	Table bistronomique d'Axel de Caseneuve et Inès de Saint Jores est une véritable invitation au voyage qui nous a transportés!
L'okara - Cantine Végétale 24 Rue Froide	Cantine végétale bio et éthique mettra de la couleur dans vos assiettes. Saveurs et textures variées sont aussi au rendez-vous, le tout dans un endroit chaleureux.
GREEDY GUTS 15, rue de Bras 02.31.93.38.52	Restaurant végétarien. 100% végétalien & 100% fait avec amour avec nos fruits et légumes issus de l'agriculture biologique !!!
Moon And Sons 20 Avenue De La Libération 02 31 74 05 01	Pub à l'ambiance tamisée inspiré de l'univers d'Harry Potter propose une carte 100% végétale (plats, pâtisseries, et de quoi grignoter).
Restaurant M-c-p 6 rue du 11 Novembre 02 55 59 54 65	Surprise, cuisine de saison, produits locaux et zéro déchets, c'est la promesse du restaurant bistronomique M-c-p à Caen. L'établissement vous propose plusieurs recettes sucrées et salées qui seront ensuite adaptées selon vos envies du moment.
La Vraie Vie 102 Rue Saint-Martin 02 14 40 51 54	Bien manger est une vraie tradition pour les propriétaires de cet établissement qui la perpétue depuis plusieurs générations. Le Restaurant La Vraie Vie, situé dans le quartier de l'Abbaye aux Hommes, révèle la rigueur et l'amour du produit qui animent cette fine équipe

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Blank Pages for Notes

Dotted lines for writing notes

Blank Pages for Notes

A series of horizontal dashed lines spaced evenly down the page, designed for taking handwritten notes.

Blank Pages for Notes

A series of horizontal dashed lines spanning the width of the page, intended for writing notes. There are 25 lines in total, spaced evenly down the page.

